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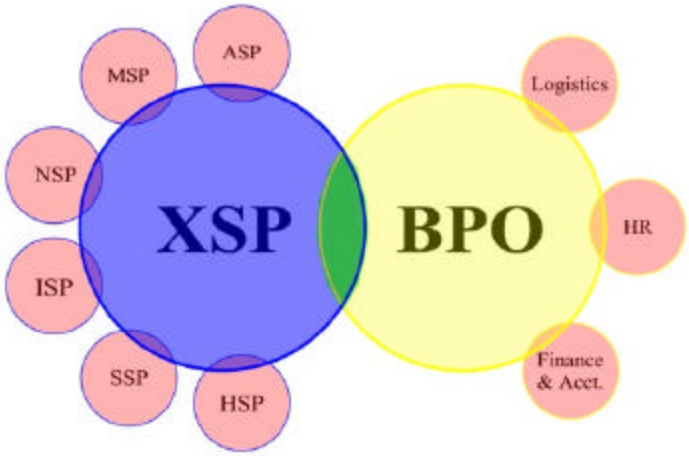
UTAH TECHNOLOGY REPORT

O U T S O U R C I N G



CRAIG BINGHAM
KIMBERLY NIELSEN
CHRIS PRESSLER
JENNIFER RICHARDS

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EXECUTIVE SUMMARY

IT OUTSOURCING AND DATA CENTERS

Outsourcing is the use of outside people or companies to perform activities that traditionally would have been performed in-house. Outsourcing is essential to compete successfully in today's fast-paced, e-commerce-enabled market environment. It is the standard used to leverage business innovation, global expansion, and competitive advantage.[i]

Information Technology outsourcing is the largest outsourced service, capturing 20 percent of the overall outsourcing market.[ii] Despite the recent downturn in the dot.com economy, IT outsourcing continues to be the area where most outsourcing dollars are spent.[iii] Technological advances, and the emergence of the Internet, have helped fuel the rapid growth of IT outsourcing by providing the infrastructure that allows quick and cost effective methods for transfer of information between clients and vendors.

This report was prepared to assist Governor Leavitt and the Utah Silicon Valley Alliance in determining the viability of developing IT Outsourcing and Data Centers in Utah and analyzing their contribution to the fertile technological environment required to "grow" Utah as a technology hub.

THIS REPORT WAS PREPARED TO:

- Diagnose and identify the growing segments of the Outsourcing Industry
- Understand the IT Outsourcing and Data Center Industries
- Provide recommendations based on industry observations that direct the course Utah should pursue in regards to IT Outsourcing and Data Centers
- Identify target companies that could contribute to the development of Utah as a world leader in the IT Outsourcing and Data Center ecosystems

IN ORDER TO ACHIEVE THESE OBJECTIVES, WE RELIED ON THREE MAJOR AREAS OF RESEARCH:

We conducted several interviews, either in person or by telephone, with industry experts and analysts. We also spoke with numerous CEO's, Vice-Presidents, and other executives of leading IT outsourcing companies.

We relied on extensive secondary and tertiary research accessed mainly via the Internet. We also utilized databases such as Lexis-Nexis and Compustat, electronic journals, and recent periodicals and newspapers to conduct an industry analysis and identify key players. Financial information was obtained from Yahoo! Finance and Hoover's Online.

We surveyed via telephone 20+ outsourcing companies in Utah. Our questions centered on what services their companies provide, whom they consider industry leaders, their long-term growth plans, their reasons for locating in Utah, and the strengths and weaknesses of Utah as a place for outsourced IT.

From our research, we have written this summary outlining our major observations and recommendations centered on the fastest growing segments of IT outsourcing and data centers.

OBSERVATIONS

OUTSOURCING

Observation #1: Outsourcing is an enormous industry. Outsourcing in general incorporates over sixty different segments ranging from legal and manufacturing services, to advertising and business payrolls.[iv] Information Technology or IT is the largest outsourced service.[v]

Observation #2: Outsourcing is essential in today's economy. To stay competitive in the e-business environment companies are relying on outside resources, provided by a constantly shifting network of alliances and partnerships. Outsourcing vendors allow companies to focus on their core competencies, reduce costs, increase speed to market, and access specialized technical expertise.

IT OUTSOURCING

Observation #3: IT Outsourcing affects the entire organization. IT outsourcing differs from the outsourcing of other non-core functions such as legal, administrative, and custodial services because IT is not a process at the beginning or the end of an organization's production chain, but an integrated part of it. IT permeates every business function in the value chain, and all support activities. [vi]

Observation #4: Convergence and consolidation are generating demand for new services. The convergence of data and voice transmission technologies has provided new opportunities and challenges for traditional telecommunications companies, IT service providers, and users of large-scale data and telephone networks. Consolidation among service providers, network infrastructure management, and global telecommunications markets is continuing at a rapid pace. The convergence between computing, broadcasting and telecommunications is generating demand for new services.

Observation #5: Trust and reliability are essential. Reputation is crucial to an outsourcing vendor's success since many IT outsourcing services require the transfer of critical company data. Clients require assurance that their data is completely secure; therefore, they usually contract with large companies whose proven track record validates their reliability.

Observation #6: The IT outsourcing industry is difficult to segment. The numerous methods for implementing technology complicates the process of defining precisely what is or is not incorporated into the IT outsourcing industry. IT outsourcing encompasses companies in the xSP market and partially extends into the business process outsourcing (BPO) market.

Observation #7: There is a movement from IT products to services. Analysts and executives agree that the technology industry is shifting from a product to service based landscape.[vii] As a result we have seen the emergence of the service provider (xSP) sector.

SERVICE PROVIDERS (XSPS)

xSP participants provide IT outsourcing services. xSPs provide externally managed services over the network to many customers at one time, paid for on a service fee basis. Participants within the xSP marketplace primarily include: Hosting Service Providers (HSP), Data center Service Providers (DSP), Application Service Providers (ASP), Management Service Providers (MSP), Storage Service Providers (SSP), Integration Service Providers (ISP), Security Service Providers (SSP), and Network Service Providers (NSP). [viii]

Observation #8: IT outsourcing services are performed by participants in the rapidly growing xSP market. IDC anticipates worldwide revenues for the xSP market to more than quadruple from $106 million in 2000 to more than $460 billion in 2005.[ix]

Observation #9: The xSP market is not clearly defined. Many xSPs address the same markets and offer similar services despite having a wide range of service offerings and business models. This relatively new industry has yet to establish clearly defined standards; therefore, participants within the industry are free to use their discretion in classifying the overall market, industry players, segments etc. As a result, many companies are included in a variety of segments causing an abundant amount of overlap to occur. Market projections and forecasts should therefore be considered rough estimates, which may vary among researchers, analysts, and industry players depending on how they define segments within the industry.

Observation #10: Telecoms are becoming leaders. Because many products are now beginning to be provided as services over the Internet, the telecom companies are playing an increasingly important role in this changing landscape. A number of the large telecoms including Sprint, WorldCom, AT&T and Qwest have added ASP, MSP, HSP and data center services.

Observation #11: In order to bring IT outsourcing companies to Utah, a strong Internet backbone is needed. As IT products are now being provided as services over the Internet or a Private Area Network, vendors providing these services require connection to a strong Internet backbone that also provides sufficient redundancy.

APPLICATION SERVICE PROVIDER (ASP)

An ASP delivers software application capabilities to multiple entities from a data center over the Internet or private area network. The ASP manages the applications itself, taking responsibility for maintenance, upgrades, and storage of client data.[x] ASP clients are charged a monthly access fee to use the application.

Observation #12: The ASP segment is not yet financially stable. A majority of ASP players are private and have been in business less than three years. According to analysts at IDC and Summitt Strategies most ASPs have yet to come out of the red. Many are telling VC firms that they anticipate breaking even in 2002.[xi]

Observation #13: A shakeout among ASPs is presently occurring. In February of 2000 the market potential for ASPs was so enormous that hundreds of companies were reinventing themselves as ASPs. As a result, countless ASPs lacking experience and expertise with complex applications occupied the marketplace. With the slowing economy, many start-ups are struggling to survive. Gartner Group has forecasted that 60 percent of the 1,500 identified ASPs will be out of business by the end of 2001 as a result of bankruptcy, lack of venture capital, mergers, and traditional competition.[xii]

Observation #14: Increasing demand for bundled and customized services. ASP clients are requiring full solutions and industry specific expertise. Therefore, the survivors of the shakeout will include: ASPs that provide vertical applications and services customized to specific industries, commonly referred to as VSPs, and those ASPs that evolve to provide an array of services, offering end-to-end solutions**.**

MANAGED SERVICE PROVIDER (MSP)

MSPs deliver IT infrastructure management services to multiple customers over a network on a subscription basis.[xiii] MSPs operate similarly to ASPs in that they deliver services via a network that are billed to their clients. The distinguishing characteristic between the two is that unlike ASPs, which deliver business applications to end users, MSPs deliver system management services to IT departments and other customers who manage their own technology assets.[xiv] ASPs target business processes associated with the applications they provide, while MSPs focus on operational processes.[xv]

Managed Service Providers can be hosting companies or access providers that are moving into next generation services such as IP Telephony, Messaging & Call Center, VPNs, Managed Firewalls, Server & Network monitoring and reporting and more.

Observation #15: MSP is a growing market with many new participants. Revenue projections for the MSP sector are estimated to reach $10 billion by the year 2004.[xvi] As a result, a number of larger and more established companies are expected to enter the MSP service space in the near future, including: traditional outsourcers, such as Computer Sciences Corp., EDS and IBM Global Services; systems integrators, such as Accenture and Deloitte Consulting; and hardware

providers, such as Compaq Computer Corp., Dell Computer Corp. and Sun Microsystems. Additionally, hosting providers are expected to continue to add to their managed service offerings.[xvii]

Observation #16: MSPs are consolidating and offering additional services. Like the ASP marketplace, MSPs are still an evolving business model. The MSP marketplace is also experiencing some consolidation. Consolidation activity will most likely take the form of vertical combinations in three possible ways: 1) Data Centers or HSPs acquiring MSPs in order to expand into higher value-added services.[xviii] 2) Data Center owners refusing to lease space to MSPs in an attempt to provide the managed services themselves. 3) Large Independent Software Vendors (ISVs) acquiring MSPs in an attempt to increase distribution of their software. Fifty percent of large ISVs are expected to create MSP offerings within their service organizations by 2003.[xix]

Observation #17: Pure Play MSPs will be a minority. It is anticipated that twenty-five percent of the pure-play MSPs—MSPs whose entire portfolios comprise subscription-based management capabilities—will cease operations within the next year due to a lack of funding.[xx] Overall, pure play MSPs are predicted to be a minority player in the market.

Observation #18: ASPs are evolving into MSPs. In moving towards complete solutions, many ASPs are entering the MSP marketplace. Numerous analysts predict the MSP model will emerge as the standard way of doing business with some leading MSPs having evolved from ASPs.

HOSTING SERVICE PROVIDER (HSP)

HSPs provide services related to the development, management, and maintenance of Web sites and Web presence. The components of a Web hosting solution include the physical infrastructure for housing the Web and application servers (Internet data centers), network connectivity within the data center and to the Internet, hardware and software (servers, operating systems, and applications), network management and performance related services (security, storage, load balancing, content delivery, and network monitoring), and professional services (consulting, design, and implementation).

Observation #19: Dramatic growth is predicted for HSPs. IDC predicts the market for web hosting services to grow from $1.903 billion in 1999 to $24.801 billion in 2004. Small businesses with less than 100 employees, currently account for more than half of the U.S. Web hosting market and are expected to capture 61.7% of the total market in 2004.

Observation #20: Co-location is the fastest growing type of HSP. There are three main types of hosting services—shared, dedicated, and co-location. Co-location is when a company uses its own equipment including servers, hardware, and software while using the HSPs facility. Co-location is predicted to experience the most growth, followed by dedicated and then shared services.

Observation #21: Higher margins are achieved in the managed service sector. HSPs and data centers are looking to increase their margins by adding managed services. Research indicated that in 2000, co-location revenue averaged $18 per square foot; co-location with some managed services netted $67 per square foot; and pure managed service players extracted $212 per square foot.[xxi]

Observation #22: Some Web Hosting companies are entering the ASP Market. Consolidation within the ASP industry has eased the entrance of Web hosting companies into the market. Hostcentric and Hostpro are two web-hosting companies who have leveraged their established expertise and network infrastructures to enter the ASP market at a fraction of the costs startups incur. Large Web hosting companies can also launch ASP services in a fraction of the time it would take a startup because their existing business software is already capable of supporting a multi-faceted business model with a massive subscriber base.[xxii]

DATA CENTERS

The most essential infrastructure for Web Hosters or Hosting Service Providers (HSPs) is the data center. A data center is a centralized storage facility used to retain database information.[xxiii] Data center infrastructure includes raised floors, redundant power supply, climate control, fire detection and suppression systems, and security procedures/technology to provide secure data center access.[xxiv]

Observation #23: Data center space is abundant. Data center space in the U.S. is anticipated to grow from 33 million square feet to 66 million square feet by the end of 2002.[xxv] In Utah, there are approximately 16 data centers operating at an average of 50% capacity. Utah data center providers have indicated a need for more tenants rather than additional square footage. In addition, Utah data centers are relatively small and unknown. Many do not have the established track record and trusted brand name possessed by industry leaders. Consequently, many companies located in Utah contract with established data centers outside the state.

Observation #24: Data Centers are not job promoting facilities. Data Centers are often referred to as lights out facilities. They typically employ anywhere from two to twenty people. This includes a few highly skilled managerial positions with higher end salaries and a number of technical security monitors who receive an average salary of $25,000.

Observation #25: Proximity to data centers. Consensus among industry executives revealed that small companies and start-ups prefer to be geographically close to their data centers. Co-located companies—who must manage and maintain their own equipment—also have a need to be geographically close. Large companies on the other hand, perceive data centers as a necessary infrastructure foundation, but are less concerned with being geographically close to their data. Utah currently has several state-of-the-art, under-capacitated data centers. However, it is our belief that companies generally do not follow data centers but data centers follow companies.

Observation #26: As large consumers of power, data centers are directly affected by the energy crisis. Data centers can require up to 10 times more energy than commercial office space.[xxvi] On a watts-per-square-foot perspective, data centers are one of the highest energy users in any industry.[xxvii] The current energy crisis is causing data center owners to respond in four ways, 1) passing on the increased costs to their clients, 2) relocating to areas with lower power costs, 3) utilizing alternative sources of energy, 4) building their own power plants.

BUSINESS PROCESS

Business Process Outsourcing (BPO) involves outsourcing non-core business operations including human resources, finance, administration, payment services, and customer relationship management.[xxviii] This sector of outsourcing will continue to serve businesses in various industries, since many companies do not want to dedicate scarce resources to complete business processes that are necessary for daily operations, but not crucial to their end product.

Observation #27: BPO is one of the most important and fastest growing segments of outsourcing. Many industry analysts expect BPO spending to more than double in the next four years. It is also one of the few outsourcing segments that is not severely impacted by an economic down turn.

Observation #28: Automation of BPO—Movement into ASP/MSP. Business process outsourcing is changing very rapidly because of technology and innovation. Advances in IT have contributed to the automation of BPO by adapting processes to be web-enabled thereby allowing customers to access support services via the Internet.

RECOMMENDATIONS

The xSP market is built on the foundation that the technology industry is shifting from a product to service based landscape. This movement is in its beginning stages. New participants are consistently entering the xSP marketplace contributing to the constant change of the industry landscape. Consequently, it is premature to assume that analysts and executives can accurately predict what this industry will look like 5 months down the road or who the successful participants will be. Therefore, our recommendations are based upon the general current business models and criteria that we foresee as having the most potential for future success.

OUTSOURCING

Recommendation #1: Utah should target outsourcing companies that perform IT-related services. Attracting technology related companies will create a greater demand for computer science and engineering graduates and also fuel the growth of technology in Utah.

IT OUTSOURCING

Recommendation #2: IT Outsourcing can promote the clustering of high tech companies. The ability to provide end-to-end IT solutions requires expertise in a variety of different areas. This has resulted in numerous types of vendors participating in the xSP market. An interview with Michael Corbett, an outsourcing expert, revealed that there is a high probability for xSP participants to locate near one another. In creating a high technologically advanced economy, IT outsourcing and the xSP market in particular, have the potential to facilitate the clustering of high tech companies; therefore, Utah should pursue developing these industries.

Recommendation #3: Utah should encourage further expansion from large, well-established outsourcing vendors. Since trust and reputation are vital when selecting an IT outsourcing vendor, many companies will only outsource to well-established firms. Therefore, large outsourcing companies, such as CSC, EDS, and IBM Global Services, will continue to retain the majority of business. Given that these companies are already headquartered in other large metropolitan areas, it is highly unlikely that they will relocate. Therefore, further expansion should be encouraged among these large players.

XSPS

Recommendation #4: Attract xSPs who have not established their headquarters. Since the service provider sector is young and evolving, many SPs have not yet fully established their headquarters. Promising ASPs, MSPs, and HSPs who lack concrete ties to a particular location should be targeted.

Recommendation #5: Target xSP companies with the following characteristics. Utah should attract leading companies that possess the following characteristics:

- A leveragable technology platform and business processes.
- Well-developed indirect sales channels.
- Compelling, well-defined product offerings.
- Clear new service development plans.
- Low capital consumption business models.[xxix]

ASPs

Recommendation #6: Allow the ASP industry time to evolve. Due to the rapid consolidation within the industry analysts feel it is nearly impossible to predict who will survive and even more difficult to foretell future leaders. We recommend cautious progression into the ASP market until the shakeout and consolidation subsides. Within the next 6-18 months surviving ASPs should begin to break even. A better idea of potential profitability can then be determined.

Recommendation #7: Utah should attract ASPs with capital, as they are more likely to survive the industry shakeout. Many start up ASP companies have failed due to lack of funding. Utah should target larger enterprises with a substantial revenue base, a proven track record, and those who provide ASP services in addition to their regular product offerings.

Recommendation #8: Utah should focus on attracting VSPs. With the increasing demand for customized, industry specific services, Utah should pursue vertical service providers (VSPs)—ASPs that tailor their applications and services to specific industries. VSPs successfully soliciting venture capital funds, especially in an economic slump, are likely to succeed.[xxx]

Recommendation #9: Utah should target large telecoms with deep pockets. With the telecoms playing an increasing role in the movement of IT products to services, moving into the ASP and MSP sectors, they should be targeted. Qwest is an attractive telecom due to its well-established Utah presence, abundant infrastructure, and current reorganization and expansion. Further expansion or relocation of its CyberSolutions headquarters from Denver into Salt Lake should be pursued.

Recommendation #10: Utah should capitalize on its software community. Given that many ASPs have their roots in the software development industry, Utah should encourage the software developers currently located here to be active participants in the development of this market. There is great potential for these companies' applications to be provided over the Internet through a system of alliances and partnerships that could be developed with system integrators, ISPs, and infrastructure providers.

Recommendation #11: Government must instigate ASP growth within Utah. Government can help promote ASPs based in Utah to other companies. The existing data center infrastructure within the state needs to be united with ASP technology. Endorsing ASP offerings and services inside and outside of Utah will increase ASP business and brand Utah as an ASP center.

MSPs

Recommendation #12: Utah should target two types of MSPs. 1) Utah should target MSPs that own their own data center facilities who do not depend upon the availability of data storage space in competitor's facilities, especially since many large data centers are refusing to lease space to MSPs. 2) Large HSPs/data centers that have acquired MSPs should also be targeted with the intention of attracting the MSP division to Utah.

HSPs and Data Centers

Recommendation # 13: Data Center potential is limited. Our research has indicated that data centers do not offer a large number of jobs and their ability to attract companies to locate near them is minuscule. Therefore, if any effort is directed toward the development of a data center ecosystem, it should be with the intention of developing the hosting service market. A data center on its own has limited potential.

Recommendation #14: Establish Salt Lake City as a Tier 1 peering point. Utah should establish a Tier 1 peering point similar to MAE-East to promote the growth of high tech companies looking to expand in Tier 1 "NFL" cities. The government should facilitate the development of this peering point by 1) serving as an unbiased third party that would house the common infrastructure where Network providers would locate and 2) holding a summit meeting with major telecom carriers such as Qwest, AT&T, WorldCom, and Sprint.

Recommendation #15: Promote Utah's excess power. If Utah decides to pursue the development of a data center ecosystem, they should target companies located in areas with high-energy costs. Utah is a very viable place to locate a data center because they are a net exporter of power. See report on alternative energy for more details.

Recommendation #16: Provide more hands on experience. Increase hands on experience for potential employees in this industry by promoting internships in Data Centers and custom-fit training programs. University programs or applied technology centers should establish certification programs and promote internships that foster the development of a wide range of expertise and technical skills.

Business Process

Recommendation #17: Utah should pursue ASPs that provide business process applications. Successful business processing is evolving to incorporate the application of technology. Therefore, Utah should target ASPs who provide business process applications. In servicing this market, ASPs have access to one of the largest and most stable segments of outsourcing.

Recommendation #18: Utah should pursue BPO in rural smart sites. Since BPO leaders are well established it is unlikely that they will relocate their headquarters to Utah. Leaders such as Paychex and ADP already have offices in Utah. Therefore, further development of BPO industry

in Utah should be pursued through the expansion of these offices into rural smart sites. Many business processes, such as payroll and benefits administration, could be done successfully from a rural smart site. Smart sites are an attractive location due to their stable, under-employed work force, low turnover rate, and strong work and education ethic. ACS, regionally headquartered in Sandy, has shown a vested interest in Utah and the Smart Site concept making them an ideal partner to target.

TARGET COMPANY LIST

Contact information for companies that should be targeted with the goal of either relocating or expanding into Utah are listed on pages 12 and 13. Companies were selected based upon business model analysis, industry rankings of market leaders, and analyst recommendations.

The list includes several promising telecoms, ASPs, VSPs, MSPs, and specialist ASPs providing business process applications. It also entails fourteen private VSP companies, who have received venture capital funding from Crosspoint Investment Firm within the last two years. Crosspoint is a venture capital firm that invests in early stage companies in two strategic areas—VSPs and E-Business Services and Broadband Infrastructure. They are interested in highly differentiated products and services that have the ability to achieve market leadership and remain differentiated over time.

Target Companies

Telecom			
Qwest www.qwest.com	Joseph P. Nacchio, Chairman & CEO	1801 California St. Denver, CO 80202	(303) 992-1400 (800) 899-7780
Qwest Cyber Solutions www.qcs-us.com	John Charters, CEO	1899 Wyncoop Denver, CO 80202	(303) 291-6400
ASP			
Corio www.corio.com	George Kadifa, Pres. & CEO	959 Skyway Road, Suite 100 Dan Carlos, CA 94070	(650) 232-3000
PeopleSoft www.peoplesoft.com	Craig Conway, Pres. & CEO	4460 Hacienda Drive Pleasanton, CA 9458	(925) 694-3000
NetLedger 1 System www.netledger.com	Evan Goldberg, CEO	2955 Campus Drive, Ste 175 San Mateo, CA 94403	(650) 627-1000
TeleComputing www.telecomputing.net	Jason Donahue, CEO	6700 N. Andrews Avenue, Suite 200 Fort Lauderdale, FL 33309	(954) 229-2900
Agilera www.agilera.com	Robert Unger, CEO	9780 Mt. Pyramid. Ct., Suite 300 Englewood, CO 80112	(888) 878-9828
Echomail www.echomail.com	V.A. Shiva, CEO	66 Church Street Cambridge, MA 02138	(617) 354-8585 (888) 354-8585
VSP			
Trizetto www.trizetto.com	Jeffrey Margolis, Pres. & CEO	567 San Nicolas Drive, Suite 360 Newport Beach, CA 92660	(949) 719-2200
Mcafee.com www.mcafee.com	Srivats Sampath, Pres. & CEO	535 Oakmead Parkway Sunnyvale, CA 94085	(408) 992-8100
DemandTec www.demandtec.com	Mike Neal, CEO	50 First Street San Francisco, CA 94105	(415) 995-8570
RedSpark www.redspark.com	Dominic Gallello, Pres. & CEO	642 Harrison Street San Francisco, CA 94107	(415) 547-2020 (800)Redspark
Believe www.believe.com		3203 Scott Boulevard Santa Clara, CA 95054	(408) 982-8600
AristaSoft www.aristasoft.com	Drew Hoffman, Co-Founder, Pres. & CEO	450 Holger Way San Jose, CA 95134	(888) 972-9950
Crossvue www.crossvue.com	Aziz Valliani, CEO	3051 North First Street San Jose, CA 95134	(408) 468-5500 (877) 932-2782
InveSmart www.invesmart.com	Craig Kirsch, CEO & CFO	Penn Center West Six, Suite 211 Pittsburgh, PA 15276	(412) 249-3200
MyAssociation, Inc. www.myassociation.com	Richard D. Hanks, Chairman, Pres. & CEO	1500 K Street, NW, 9th Floor Washington, DC 20005	(202) 367-1025

eSilicon www.esilicon.com	Jack Harding, Chairman, Pres. & CEO	3920 Freedom Circle Santa Clara, CA 95054	(408) 567-5637
Novopoint www.novopoint.com	Robert Schult, Pres. & CEO	440 West Ontario, Suite 300 Chicago, IL 60610	(312) 762-9400
Swan Systems www.swansystems.com	Confidential	425 Market Street, Suite 2650 San Francisco, CA 94105	(415) 901-7700 (888) 447-7926
Dorado www.dorado.com	Tom Lounibos, Pres. & CEO	1900 O'Farrell Street, Suite 200 San Mateo, CA 94403	(650) 227-7300
TheSupply.com www.thesupply.com	Geoff Wild, Pres. & CEO	2890 Zanker Road, Suite 101 San Jose, CA 95134	(408) 519 6800 (877) 525 8808
VitalLink www.vitallink.com	Glenn Bacheller, CEO	270 14th Street San Francisco, CA 94103	(877) 770-7795
MSP			
Digex www.digex.com	Mark Shull, Pres. & CEO	One Digex Plaza Beltsville, MD 20705	(240) 264-2000
Vericenter www.vericenter.com	Roger Ramsey, Chairman & CEO	757 North Eldridge, 2nd Floor Houston, TX 77079	(281) 584-4500 (866) Vcenter
ASP/BPO			
Portera www.portera.com	Gary L. Steele, CEO	1688 Dell Avenue Campbell, CA 95008	(408) 364-3600 (888) 263-8482
Critical Technologies www.criticaltech.com	Mick Duncan, CEO	100 Park Ave, Suite 500 Oklahoma, OK 73102	(405) 235-8400

OUTSOURCING

Outsourcing is the use of outside people or companies to perform activities that traditionally would have been performed in-house. Outsourcing activities have previously fallen under the terms contracting, subcontracting, and consulting.

Outsourcing has become a standard business practice across multiple industries in both large and small corporations. Companies who initially asked the question, "Should we outsource?" are now asking, "How can we ensure success in this new outsourced world?"

Vertically integrated firms of the past have been replaced by a more flexible organization where internal investments focus on the organizations core competencies with sub-disciplines being outsourced. Outsourcing is an essential component of successfully competition in today's fast-paced, e-commerce-enabled market environment. Outsourcing is the standard used to leverage business innovation, global expansion, and competitive advantage.[xxxi]

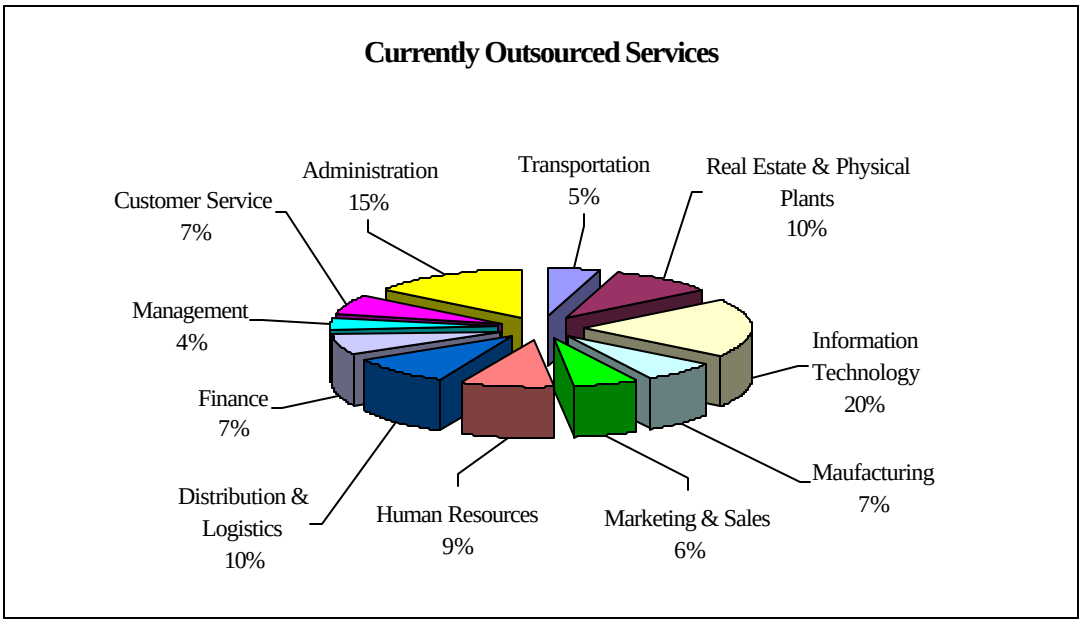
Outsourcing in general incorporates over sixty different segments ranging from legal and manufacturing services, to advertising and business payrolls[xxxii] ***(see Appendix 3)***. With such a wide variety of tasks being outsourced, the actual size of the overall market becomes somewhat ambiguous. Each analyst group defines the market differently. As a result, overall market projections vary substantially depending upon the group conducting the research and whom they are including within the market. By segmenting outsourcing into specific activities a more accurate depiction of the size, characteristics and potential of each segment can be obtained.

At the 2001 Worldwide Outsourcing Summit, Michael F. Corbett and Associates surveyed top executives regarding what business functions and services they currently outsource. Nearly half of the executives surveyed also said their level of outsourcing would increase over the next year. At 20 percent, Information Technology or IT, was the largest outsourced service. **See Figure 1** Regarding IT outsourcing, respondents estimated seventeen percent of the average IT budget was allocated to outsourcing. Ten percent indicated 50% or more of their IT budget is outsourced.[xxxiii]

"At 20%,Information Technology is the largest outsourced service."

Michael Corbett and Associates, 2001 Worldwide Outsourcing Summit.

Figure 1



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IT OUTSOURCING

This paper focuses specifically on the Information Technology outsourcing segment. IT outsourcing entails hiring an outside source to transfer components or large segments of an organization's internal Information Technology structure such as staff, processes and/or applications. Many companies outsource their email, desktop maintenance, data center management, applications development, hosting services, and business processes.

EVOLUTION OF IT OUTSOURCING

Technological advances, especially the Internet, have helped fuel the rapid growth of IT outsourcing by providing the infrastructure that allows quick and cost effective methods for transfer of information between clients and vendors. Information technology has enabled companies to remain in close contact even if they are located large distances away from each other.

The driving force behind the demand for outsourcing services changes with the economy. "In boom times, outsourcing tends to be focused on time-to-market issues, and in down times focused on cost savings and restructuring," according to Peter Bendor-Samuel, CEO of The Outsourcing Center Corp., a Dallas-based consultancy.[xxxiv]

In today's demanding and dynamic Internet environment, survival means speed. Companies need to engineer new ways of defining, obtaining and leveraging their information technology infrastructure and applications in order to survive in today's economy. They cannot do it by solely relying on their own resources. To stay competitive in the e-business environment companies are relying on outside resources, provided by a constantly shifting network of alliances and partnerships. Outsourcing vendors allow companies to get what they need, when they need it, in the same manner they access power, water, gas, light, telephone, and television.

IT & THE VALUE CHAIN

IT outsourcing differs from outsourcing other non-core functions such as legal, administrative, and custodial services because IT is not a process at the beginning or the end of an organization's production chain, but an integrated part of it.[xxxv]

Unlike many other products and services, IT cannot be easily isolated from other organizational functions. IT permeates every business function in the value chain, as well as all support activities. IT is not a homogeneous function, but comprises a wide

variety of IT applications that are integrated parts of almost all processes within an organization, and influences directly how these processes are performed. [xxxvi]

GROWTH

As the new economy spreads to a global scale, companies from diverse regions will need more and more assistance in managing IT and business functions to remain competitive. While the growth rate in IT outsourcing has slowed, it continues to be the area where most outsourcing dollars are spent.[xxxvii] Some of the largest-scale outsourcing deals to date occurred in 2000. Of the top 100 outsourcing deals in 2000, International Data Corporation (IDC) analysis revealed contract expenditures reached almost $56 billion. The contracts ranged from $58 million to $7.5 billion, with the highest number of deals falling between $100 million and $249 million.[xxxviii]

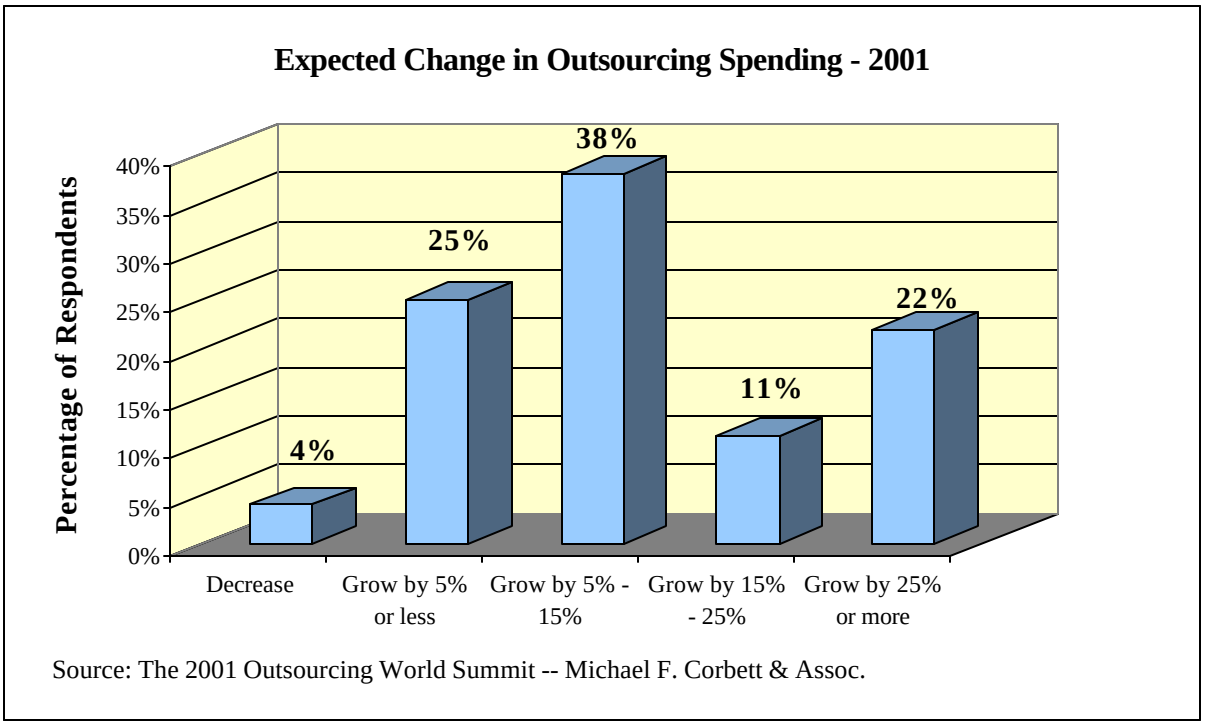
A recent study by Merrill Lynch expects budgets for e-commerce solutions to increase 30 percent in 2001. Of the companies surveyed in the study 20% said that the weak economy has them thinking about accelerating their long-term outsourcing plans.[xxxix]

According to the Outsourcing Index 2000, outsourcing expenditures in the U.S. from autumn 1999 to autumn 2000 grew from $295 billion to $340 billion, a 15% growth in one year. Smaller companies (sales from $10 to $50 million) were expected to be the major contributors to this large growth rate. Small company expenditures were estimated to increase 25% year ending autumn 2000.

"Of the companies surveyed, 20% said that the weak economy has them thinking about accelerating their long-term outsourcing plans."
Merrill Lynch

Michael Corbett and Associates surveyed top executives regarding their opinions as to future outsourcing expenditures. Executives quantified their estimated expenditures as decreasing, growing by 5% or less, growing by 5% to 15%, growing by 15% to 25%, or growing by more than 25%. The majority of respondents indicated that they estimate a 5% to 15% growth next year. Results are depicted in **Figure 2.**

Figure 2
Expected Change in Outsourcing Spending According to Top Executives, 2001



Source: http://www.firmbuilder.com/articles/19/48/676/default.asp?

IT OUTSOURCING BENEFITS

The following list depicts the most common reasons for outsourcing, although the decision to outsource depends heavily upon individual company objectives.

- Cost/Risk Reduction
  - With the explosion of technology, outside service providers provide access to technology and new services at a fraction of the cost and risk that would typically be associated with in-house efforts. This quick access is necessary to satisfy customers. The speed of e-business is raising customer's expectations, and responsiveness is often the driving force behind customer loyalty.

  - With the increasing complexity of the software required to run an e-commerce Web site, employers are finding it too costly to purchase, and then train their employees on these new packages. It often requires a separate group to install and support the necessary hardware. And companies that hire integrators risk incurring the extra expense of bringing the integrators back when its own inexperienced IT team cannot upgrade or reconfigure the software.

  - According to a survey of 150 American and European companies released last month by The Conference Board Inc. in New York, cost cutting was the top

benefit of outsourcing, cited by 39% of respondents. Having access to experts came in second among respondents, with 38%.[xl]

- Focus on Core Competencies
  - IT specialization is a business necessity. Because technology changes literally on a daily basis, it is much easier for companies to outsource at least part of their IT operations to a firm with IT expertise and economies of scale.[xli]

- Speed to market
  - Businesses want to be able to sell their product as quickly as possible. Building every necessary piece of technology in-house could cause time to market to take years. By outsourcing IT operations, companies are able to take advantage of the rapid deployment and flexibility offered by IT service providers.

- Shortage of IT Personnel
  - Gartner has determined that in the IT industry, only 7.5 people are available for every 10 positions. That disparity will continue for the next three to five years and will be aggravated by a wave of new retirees from IT management and specialist ranks.[xlii]

  - In the midst of a national IT staff shortage and record low unemployment rates, outsourcing vendors eliminate the never-ending quest for skilled IT workers. Many companies do not have the personnel, equipment, or capital to support a full technology team.

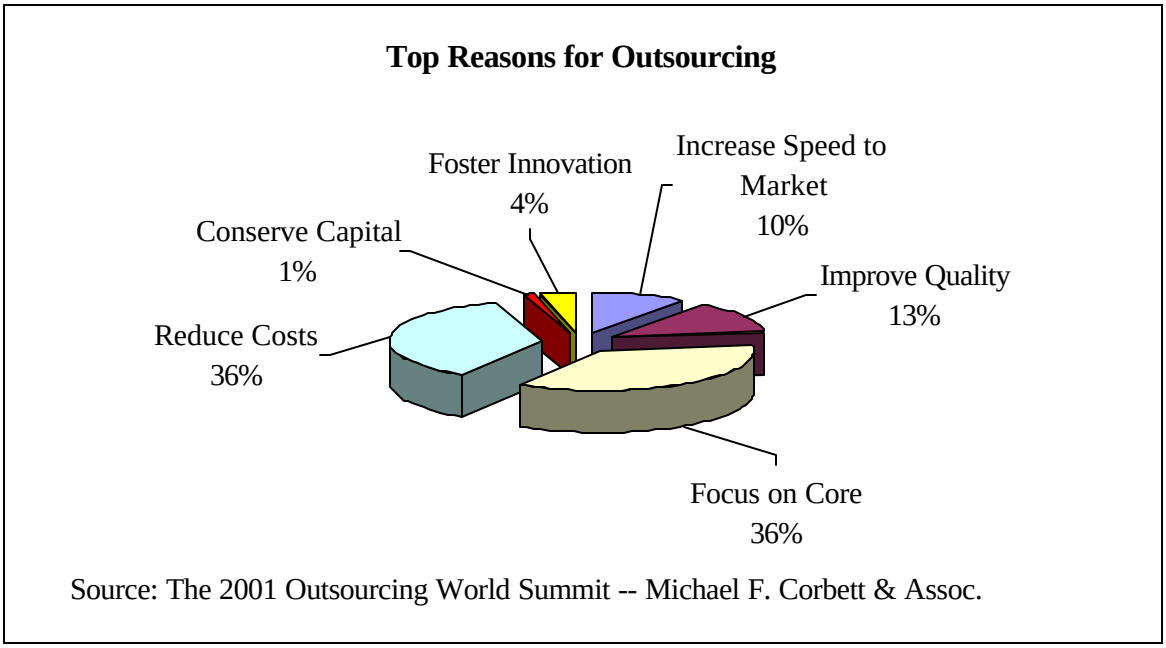
  - Ninety-one percent of network executives surveyed at the 2001 Outsourcing Summit are struggling to find qualified technical people making outsourcing an increasingly viable alternative.

- Access to Equipment
  - The monetary investment required to purchase hardware and software can be staggering. Customer-relationship management software from Broadvision costs anywhere from $200,000 to upward of $400,000 and a Sun Microsystems server costs $20,000 to $100,000. For startups with limited capital to spend on state-of-the-art servers and networks, IT outsourcers seem like a wise choice.[xliii]

- Buffer from a constantly changing environment
  - Outsourcing can help mitigate change in the environment by incorporating the services of a best-in-class provider who has more expertise and focus to concentrate on managing change.

The top reasons for outsourcing, according to executives at the 2001 Outsourcing World Summit, are depicted in **Figure 3** below. At 36% each, focusing on core competency and reducing costs were the top two reasons for outsourcing.

Figure 3



Source: http://www.firmbuilder.com/articles/19/48/676/default.asp

IT OUTSOURCING OBSTACLES

Decision makers must consider several issues when deciding whether or not to outsource a part(s) of its business.

- Security of Information
  - One of the largest obstacles faced by IT outsourcing vendors is securing client information. Security is of the utmost importance and is a major concern for IT outsourcing clients. In many cases businesses perceive their information as a distinct competitive advantage. Moving information outside the business entails risks of exposure and loss of control. A breach of security has the potential to compromise a company's competitive advantage if they lose proprietary information.

One of the largest obstacles faced by IT outsourcing vendors is securing client information.

- Underlying Economics
  - Few industries endure underlying economic shifts as rapidly as the IT industry does; therefore, a simple basis for estimating the economics of IT activity does not exist. Today's computing resources will cost 20-30% less next year. This rapid change in the economics of the IT industry yields extreme uncertainty in the minds of decision makers. It also impairs effective evaluation of the costs of bids. A 10% discount on IT services for the next 2-5 years may be appealing to an executive today, but by the next year they may be paying the vendor above-market prices for computer resources.[xliv]

- Switching Costs
  - Due to the rapid pace at which technology evolves, clients with long-term contracts have often found themselves locked into older technologies. Old contracts inhibit the adoption of new technology.

- Less Flexibility
  - Some business executives believe outsourcing IT functions removes or significantly decreases flexibility of how IT is delivered.

- Cost Savings

  - When vendors submit bids that indicate savings, companies may question whether they can achieve similar results without vendor assistance. If the vendor is not more efficient, perhaps the company can reduce its own IS expenses through data center consolidation, resource optimization, and charge back implementation, which can dramatically reduce IS costs.[xlv]

  - Many managers assume outsourcing vendors are inherently more efficient due to economies of scale. However, the applicability of economies of scale in the outsourcing arena is questionable for four reasons.
    1) Small shops may have lower costs than large shops by employing older technology, offering below-market wages, and maintaining tight controls and procedures.
    2) The difference between hardware discounts granted to vendors versus individual companies is often negligible.
    3) Changes in software licensing agreements diminish a vendor's advantage.
    4) Labor expertise is largely a myth since the same staff that was transferred to the vendor usually supports clients. Purchasing new expertise from the vendor may be costly.[xlvi]

A purchaser will need to account for internal employee transfers and layoffs that result from the outsourcing decision. For example, a company might transfer some key employees to the outsourcer as part of the arrangement. Later, they may decide they are not satisfied with that particular outsourcer and wish to go elsewhere. They may or may not be able to transfer those

same employees back in-house. Unless there are provisions in the contract the purchaser will lose direct control over the business process or function being outsourced.[xlvii]

OTHER DRAWBACKS TO OUTSOURCING[xlviii]

- Damaging employee morale
    - With outsourcing comes the threat of lost jobs. Companies considering outsourcing risk having employees searching for employment elsewhere, as well as a decrease in loyalty and morale.
- Losing valuable expertise
    - Whenever a company reduces its staff, it risks losing senior employees and their extensive expertise.
- In-house efficiencies may already exist
    - While outsourcing usually increases efficiency, a company may have an existing efficient method of handling a task. In-house expertise and experience may be more valuable to a company than what an outside firm can offer.

IT OUTSOURCING LEADERS

Following are the profiles of the leading companies in the IT Outsourcing industry. IBM, EDS, and CSC currently have offices located in Utah. ACS has its western region headquarters located in Sandy, Utah.

Affiliated Computer Services, Inc. (ACS)

ACS is a leading information technology services company in the Fortune 1000. Based in Dallas, TX, they have operations in North America, Central and South America, Europe, and the Middle East. ACS delivers strategic value, business results, and operational gains and also provides a full range of information technology services, including technology outsourcing, business process outsourcing, and professional services to more than 10,000 clients worldwide. ACS offers technology functions in the several business areas including web site design/management, mainframe computing operations, desktop and client server management, network management, help desks, call centers, and data warehousing. In 2000, ACS achieved over $1.9 billion in annual revenue.[xlix]

ACS	2000	1999	1998
Revenue	1,962.5	1,642.2	1,189.1
Revenue Growth	20%	38%	
Net Income	109.3	86.2	54.4
Profit Margin	6%	5%	5%
Assets	1,656.4	1,223.6	949.8
Liabilities	945.1	616.1	446.2
Market Cap	3,010.2	2,094.0	2,169.0
http://www.hoovers.com/annuals/8/0,2168,42188,00.html			

International Business Machines (IBM) Global Services

IBM is the leading company in the industry because of their scope and sales volume. IBM's Global Services provides business innovation services, integrated technology services, and strategic outsourcing services. IBM focuses on managing processes that complement a companies mission critical activities. IBM's strategic outsourcing services include application management services, data center outsourcing services, desktop outsourcing services, e-business hosting services, and network outsourcing services. IBM is headquartered in Armonk, New York and generated $88.39 billion in revenue in 2000.[1]

IBM	2000	1999	1998
Revenue	88,396.0	87,548.0	81,667.0
Revenue Growth	1%	7%	
Net Income	8,093.0	7,712.0	6,328.0
Profit Margin	9%	9%	8%
Assets	88,349.0	87,495.0	86,100.0
Liabilities	67,725.0	66,984.0	66,667.0
Market Cap	160,602.7	193,121.8	168,067.7
http://www.hoovers.com/annuals/6/0,2168,10796,00.html			

Computers Sciences Corporation (CSC)

CSC is a leading provider of IT services to commercial and government entities worldwide. The company offers a broad range of capabilities, from consulting to systems integration to outsourcing. Their broad span of outsourcing services includes business management consulting, systems integration, network operations, Web and application hosting, business process outsourcing, and data center, desktop and applications management.[li]

CSC	2000	1999	1998
Revenue	10,524.0	9,370.7	7,660.0
Revenue Growth	12%	22%	
Net Income	233.2	402.9	341.2
Profit Margin	2%	4%	4%
Assets	n/a	5,874.1	5,007.7
Liabilities	n/a	2,830.1	2,607.9
Market Cap	10,137.9	15,190.6	10,222.2
http://www.hoovers.com/annuals/5/0,2168,10385,00.html			

Electronic Data Systems (EDS)

EDS is a global leader in the information technology (IT) field. EDS' services are broadly categorized into Information solutions, business process management, and consulting. Information solutions includes network and system operations, data management, field services, applications development Internet hosting, and website management. They offer sophisticated web, mobile, or storage hosting services for hundreds of enterprises worldwide, helping businesses embrace speed and innovate quickly in the digital environment. EDS serves more than 9,000 accounts, supports more than 2.5 million desktops around the world, provides information assurance services to nearly 2,000 clients worldwide, enables more than 11 billion business, consumer and government transactions every day, processes 2.5 million ATM transactions every day, processes 44,000 credit applications daily, provides hosting services for about 6,300 clients and web hosting for about 750 clients worldwide, and manages about 46,400 servers in 140 company- and client-owned data centers. Headquartered in Plano, Texas, EDS employs 122,000 people in 55 countries and had revenue of $19.2 billion in 2000.[lii]

EDS	2000	1999	1998
Revenue	19,226.8	18,534.2	16,891.0
Revenue Growth	4%	10%	
Net Income	1,143.3	420.9	743.4
Profit Margin	6%	2%	4%
Assets	12,700.3	12,522.3	11,526.1
Liabilities	7,561.6	7,987.7	5,609.6
Market Cap	26,745.4	30,242.4	24,107.7
http://www.hoovers.com/annuals/5/0,2168,41915,00.html			

Unisys

Unisys delivers e-business solutions to help customers in 100 countries succeed in the Internet economy. More than 70 percent of the company's sales come from consulting and integration services, mostly for niche customers in the United States. Unisys' IT outsourcing portfolio includes applications management, data center, distributed systems (client/server) computing, and desktop and network operations outsourcing. Outsourcing services can be delivered either on-site or remotely from a Unisys outsourcing service center. Unisys is headquartered in Blue Bell, PA, employs about 37,000 employees worldwide, and had 2000 revenue of $6.88 billion.[liii]

Unisys	2000	1999	1998
Revenue	6,885.0	7,544.6	7,208.4
Revenue Growth	-9%	5%	
Net Income	225.0	510.7	387.0
Profit Margin	3%	7%	5%
Assets	5,717.7	5,889.7	5,577.7
Liabilities	3,531.6	3,936.4	4,060.7
Market Cap	4,642.1	9,962.5	8,837.3
http://www.hoovers.com/annuals/8/0,2168,11548,00.html			

Science Applications International Corporation (SAIC)

SAIC is a diversified high-technology research and engineering company based in San Diego, California. SAIC offers a broad range of expertise in technology development and analysis, computer system development and integration, technical support services, and computer hardware and software products. At the core of SAIC's solution is the proven Integrated Services Management Center (ISMC) methodology which provides a centralized, integrated operations and support center for:

- Help Desk Management
- Process Management
- Systems and Database Management
- Network Management
- Service Request Management

SAIC and its subsidiaries have over 41,000 employees at offices in more than 150 cities worldwide.[liv]

SAIC	2000	1999	1998
Revenue	5,895.7	5,529.7	4,740.4
Revenue Growth	7%	17%	
Net Income	2,059.0	619.8	150.7
Profit Margin	35%	11%	3%
Assets	6,092.1	4,405.2	3,172.5
Liabilities	2,748.0	2,575.0	2,087.9
Market Cap	n/a	n/a	n/a
http://www.hoovers.com/annuals/7/0,2168,40417,00.html			

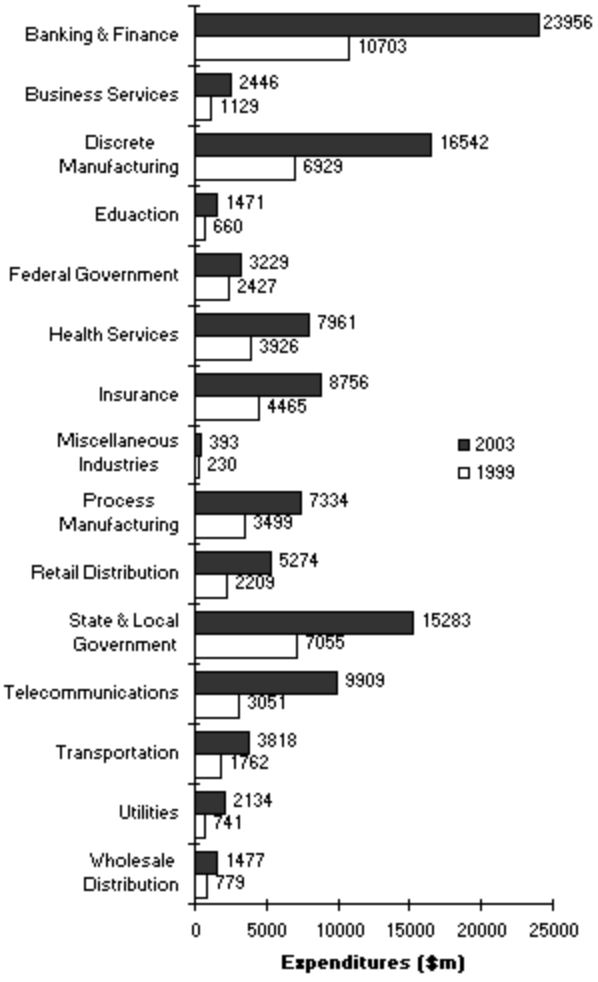
WHO UTILIZES IT OUTSOURCING

Exhibit 1 provides a forecast for IT outsourcing in the U.S. by industry sector. This exhibit was adapted from an article written by Input entitled "Executive Guide to IT Outsourcing in the U.S." It forecasts IT outsourcing expenditures by specific industry sector from 1999 to 2003. The largest expenditures are predicted to occur in the Banking and Finance industry. Telecommunications is forecasted to have the greatest growth percentage at 3.25%, followed by utilities. The trends and affects of IT outsourcing within some of the industries are also detailed within the exhibit.

The largest IT outsourcing expenditures are predicted to occur in the Banking and Finance industry.
Input

Exhibit 1

U.S. Outsourcing Industry Sector Forecast



Source: INPUT

Financial institutions

Financial institutions are undergoing a period of rapid consolidation and transformation from a local, bricks-and-mortar model to a new, "clicks-and-mortar" model in which geography may be unimportant. As they undergo difficult (and expensive) re-engineering in order to cope better with new competitors, outsourcing offers many compelling advantages. In this process, financial institutions are using business operations outsourcing as a means of withdrawing from non-core business activities, such as check processing.

Insurance Industry Market

Because of increased competition, companies in this sector are re-examining their core processes, or competencies, and are showing increasing acceptance of outsourcing as a viable alternative to in-house IT solutions.

Health Care Services Market

It is worth noting that the health care sector has long been enthusiastic about facilities outsourcing as well as functions outsourcing such as physical therapy, supplies, pharmacy, transportation and rehabilitation. Only IT outsourcing has lagged due to industry fragmentation, regulatory restraints and concerns about patient as well as institutional privacy (and legal liability). Progress is being made in overcoming all of these barriers, but significant difficulties remain. Of these, perhaps the most serious is the conflict between effort to cut costs and efforts to insure the highest quality medical services. The hope is that IT outsourcing will contribute toward substantive cost-savings while improving medical outcomes.

As consumers and business become accustomed to accessing health care services from the Internet, the demand for ancillary support services to providers will grow—and much of this will likely take the form of outsourcing. Online sales of pharmaceuticals alone are expected to reach almost $1 billion by 2003. If so, they will require a rapid development of IT infrastructure for the high-volume, e-commerce transactions that such a forecast implies.

Process Manufacturing Industry Market

The healthy growth projected for this sector reflects, in part, the robust health of the U.S. economy where consumer sales, business-to-business sales, and e-commerce have all been rising dramatically in an essentially non-inflationary environment.

Due to competitive pressures resulting from globalization of markets, and the urgent need for manufacturers to improve efficiency and cut costs when they are unable to raise prices, companies are offloading non-core IT functions to outsourcers so that they can focus on their core competencies.

Cost effectiveness remains the most potent driver of outsourcing in the process-manufacturing sector.

Retail Industry Market

The U.S. retail industry is undergoing a period of restructuring as brick-and-mortar retailers confront "click-and-mortar" vendors, partly as e-commerce adversaries on the Internet that exist only in cyberspace, and partly with other established retailers that are attempting to adjust their business models to the new realities of the Internet.

In addition retailers, merchandise suppliers, and transportation providers are spending large amounts of money to streamline their communications, logistics systems, billing, payment, and inventory links. IT spending is raising the competitive barrier as smaller players find it increasingly difficult to match larger competitors in technology spending. One solution has been for Small and Medium-Sized Enterprises (SME) to make use of application service providers (ASP). Under this model, they pay one fixed, monthly amount that can cover access to required software applications, application maintenance, upgrades, IT platform operations and help desk support.

In addition, retailers are rapidly adopting business-to-business Electronic Bill Payment and Presentment (EBP&P) solutions which, when coupled with EDI technology (being updated to the Internet and XTML), promises to permit small players to achieve some of the advantages that were reserved previously for Wal-Mart and other giant organizations.

Utilities Industry Market

As is the case in other industries, deregulation and other competitive pressures are compelling utilities to use IT outsourcing to permit them to off-load responsibility for business functions that are not mission critical or representing their core competencies. In particular, utilities are showing growing enthusiasm for outsourcing all aspects of their billing functions.

Telecommunications Industry Market

The telecommunications industry, another sector that is undergoing major changes, is generating strong demand for outsourcing, particularly for call center-related activities, such as customer care and Internet bill payment and presentment.

It is also confronting the challenges of convergence of voice/data/Internet traffic. New competitors include wireless cellular service vendors, cable companies and large, global media giants that own television, cable, movie studios, publishing, and distribution arms.

Education Industry Market

Currently, Internet-enabled "distance learning" is the siren tempting many educational institutions to consider calling in outsourcers. Politicians, college administrators and private

businessmen see this as an attractive, growing and lucrative market able to appeal successfully to students who are unable to pay ordinary tuition fees and attend educational institutions in person.

At the same time, university professors are attempting to slow down or stop this bandwagon of enthusiasm. They believe that the push to offer on-line undergraduate degrees has been motivated by "short-sighted cost-cutting strategies that aimed to make a quick buck at the expense of students."

Teachers fear that the quality of education delivered by Internet will seriously compromise traditional goals. Also, they are suspicious that administrators will ultimately expect them to provide "content" for, and supervision of on-line education with no additional compensation.

Clearly, foot-dragging by the foot soldiers of the educational industry will brake the development of distance learning. In contrast, the outlook for IT outsourcing of institutional infrastructures, desktops and applications remains good and demand for such traditional support will continue to fuel modest growth in the industry.[lv]

TRENDS AND ISSUES IN IT OUTSOURCING

SERVICE LEVEL AGREEMENTS (SLA)

One way companies proactively avoid the potential drawbacks of IT outsourcing is by utilizing service level agreements (SLA). Organizations running vital online commerce sites require stringent SLAs to ensure network performance. SLAs are no longer a trend but a commodity. An SLA is a contract tool, which outlines a vendor's expected performance levels. Prior to contract engagement the client and vendor determine the required services and performance levels and the metrics by which those capabilities will be measured.

Due to the past number of failed relationships, SLAs are becoming increasingly important in the outsourcing industry. They give the client more control over the level of performance rendered by the vendor. Daniel Ziegeler, director of outsourcing advisory services at Deloitte Consulting said, "50% of the work that we're doing these days is helping clients re-mediate deals that have gone bad." Ziegeler says that clients fail for two reasons: (1) they outsource for the wrong reason or (2) they don't manage the vendor.

"50% of the work that we're doing these days is helping clients re-mediate deals that have gone bad."
Deloitte Consulting

Basic IT service SLAs should include the following: key application and network availability, response time, security, recovery, monitoring, tracking, third-party involvement, performance-based payment and reimbursement, end-of-relationship clauses, and mutual understanding of business objectives.[lvi]

Below is an outline for effective methodology for establishing SLAs.[lvii]

1. Define requirements and expectations.
    - Clearly defined expectations are key to an effective SLA.
2. Define baseline requirements and means of measuring performance.
    - You cannot enforce an SLA without establishing meaningful measurements and comparison points.
3. Establish a system of rewards and penalties for compliance and noncompliance.
    - Without such a system, the service provider has no incentive to follow the SLA.
4. Implement tools to monitor SLA compliance.
    - Unless you monitor performance, you have no way of knowing if the service provider is meeting its obligation.
5. Periodically review SLA contents for timeliness and accuracy.
    - Technology changes quickly, and your SLA should reflect these changes in a timely manner.

CONVERGENCE

Many changes have evolved in business since the advent of the Internet: shrinking of the supply chain, shrinking of business and technology life cycles and ease at which companies can access breakthrough technology to better enable them to serve and expand their markets.

Over the past five years, data transmission has increased significantly. It has already equaled the amount of voice traffic being carried across global telecommunications networks and in is anticipated to dwarf the traditional voice telephony market in the near future.[lviii] As data transmission becomes the dominant activity, advances in technology are enabling voice traffic to be merged with data traffic and transmitted over the same networks. The rapid and dynamic changes in the technology marketplace have heightened the profile of the cost and importance of effectively managed networks.

The convergence of data and voice transmission technologies has provided new opportunities and challenges for traditional telecommunications companies, IT service providers, and users of large-scale data and telephone networks.

The convergence of data and voice transmission technologies has provided new opportunities and challenges for traditional telecommunications companies, IT service providers, and users of large-scale data and telephone networks. Consolidation among Internet Service Provider (ISP), application service provider (ASP), network infrastructure

management, and global telecommunications markets is continuing at a rapid pace. The convergence between computing, broadcasting and telecommunications is generating demand for new services.

The convergence of the network and IT services industries may also evolve to a computing utility service.[lix] Traditional IT services that were once managed in-house or as part of a traditional outsourcing agreement are shifting to a computing utility service from a common networked infrastructure. The IT utility may include delivery of IT capacity to the customer from an external location, ownership of at least part of the IT infrastructure by the utility provider, remote delivery of services, and pricing and payment plans resembling traditional leasing agreements.

As a utility, IT vendors can reap significant economies of scale while reducing costs. However, IT vendors may be eliminated due to consolidation across industries as well as intense price competition. For customers or buyers, benefits include lower switching costs, the ability to leverage IT to achieve increased ROI, an easier way to keep up with upgrades, and faster time-to-market opportunities.[lx]

OFFSHORE OUTSOURCING

Of the total expenditures spent on outsourcing in the U.S. in 2001, the outsourcing index estimates that two out of every ten dollars will be spent on offshore outsourcing. Functions that are commonly outsourced abroad are finance, legal support, facilities management, and securing local expertise and knowledge from proven experts.[lxi]

> ***"Of the total expenditures spent on outsourcing in the U.S. in 2001, two out of every ten dollars will be spent on offshore outsourcing."***
> *Outsourcing Index*

India is one of the Mecca centers for offshore outsourcing. This is due to:

1. A large supply of educated workers producing approximately 60,000 computer engineering graduates each year compared to approximately 30,000 for the U.S.
2. Favorable cost structure
    a. More written lines of code per year results in lower costs per line of code.
    b. Allows companies to spend more of their information technology budget, which was previously being spent on mature applications on unique applications, which add greater value.
3. Capability Maturity Model (CMM)- Five of the seven CMM level 5 development centers are in India
4. Time zone allows businesses to outsource their workload to India during the off hours creating a 24-hour workday.[lxii]

Despite the tendency for firms to outsource abroad, U.S. companies and their shareholders like to maintain a U.S. presence. Some may even feel an ethical obligation to provide jobs for U.S. citizens and promote the U.S. economy.

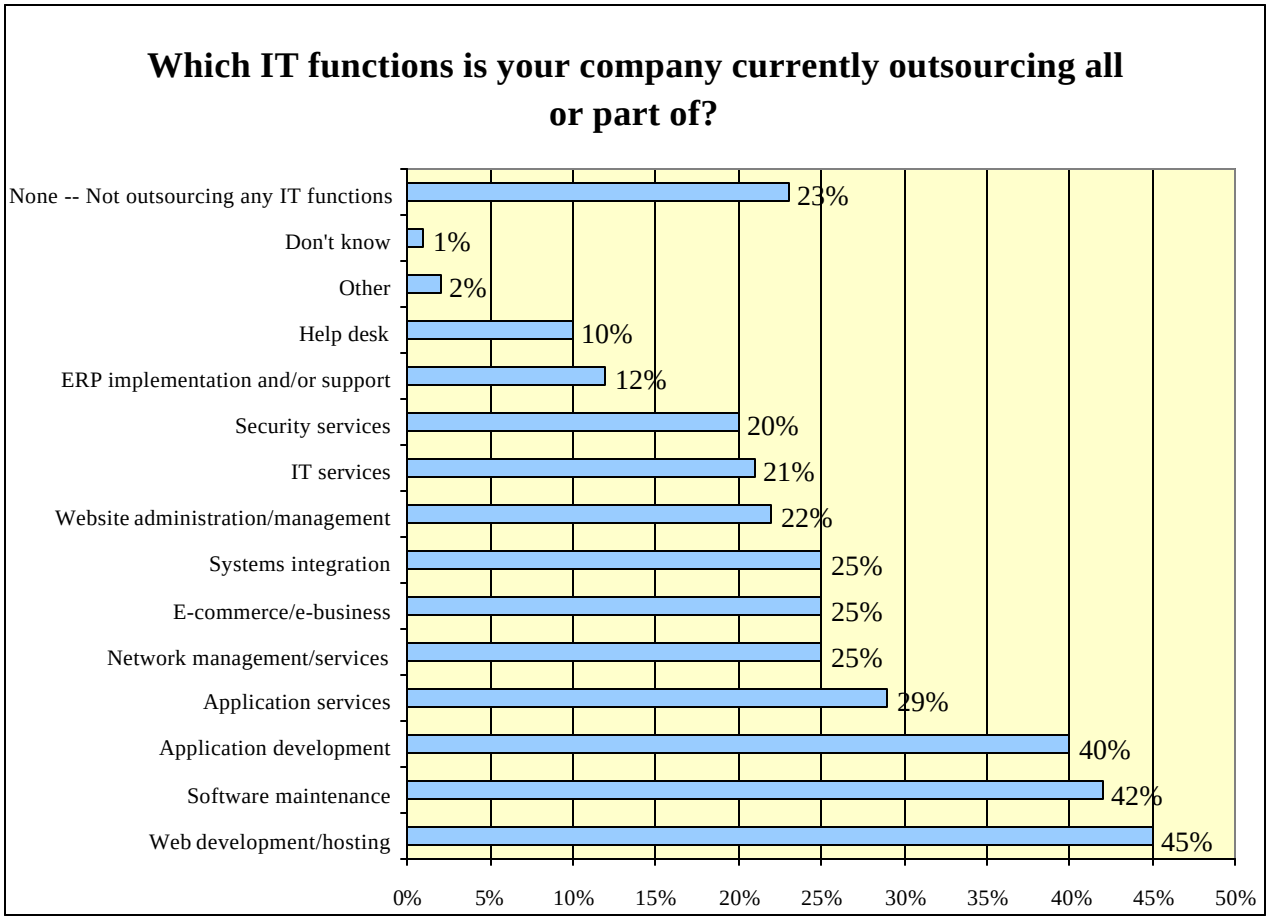
BUNDLING AND ALLIANCES

Most companies that outsource their IT operations and services are looking for hosting, development, maintenance in software, hardware, networks, security, help desks and a range of other services, all from a single provider.[lxiii] Consequently, IT outsourcers are changing in one of two ways. Some are expanding their service offerings to encompass all IT requirements. Others are forming alliances and partnerships with vendors who provide complimentary IT services. Outsourcers who partner together can maintain a focus on their core service offering, while providing one-stop-shopping by outsourcing additional services to their partners.

IT OUTSOURCING SERVICES

Figure 4 displays the most commonly outsourced IT functions. Web hosting, software maintenance, and application development are the most commonly outsourced services.

Figure 4



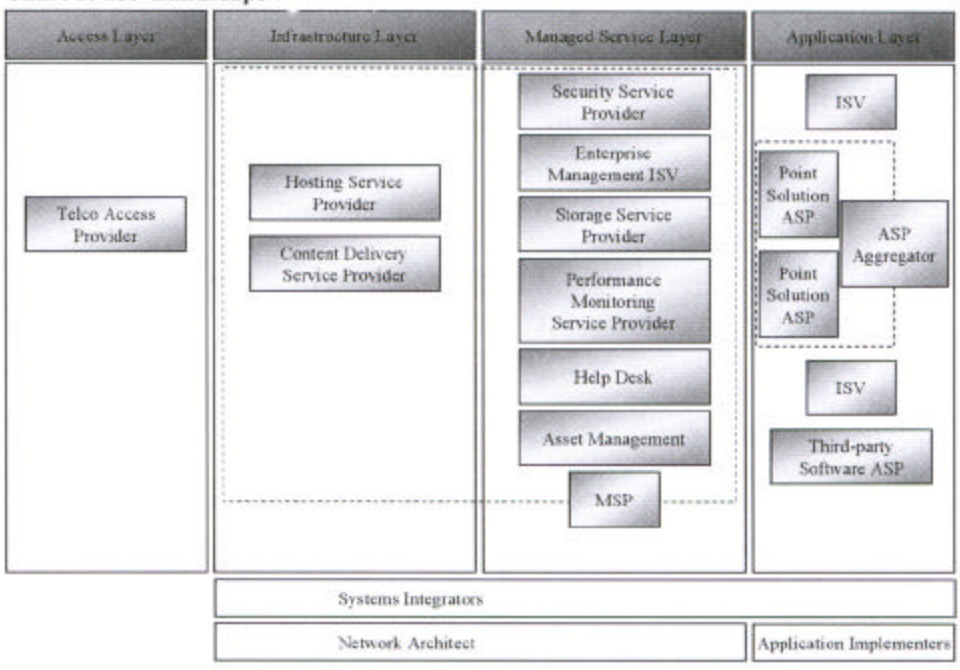
Source: http://www.itworld.com/Career/1875/IW01212tcsurvey/

THE XSP MARKET

The IT outsourcing services outlined in **Figure 4** are primarily provided by companies participating in the xSP marketplace. The xSP business model is based on providing externally managed services that are delivered over the network to many customers at one time, paid for on a service fee basis.[lxiv] Numerous acronyms are being created and used by industry participants and analysts to describe various types of emerging business models. Most of these acronyms tend to end in the letters "SP" in reference to a type of service provider. Service Providers include ISPs, hosting companies, and telecommunications companies. Participants within the xSP marketplace primarily include: Application Service Providers (ASP), Hosting Service Providers (HSP), Storage Service Providers(SSP), Data center Service Providers(DSP), Management Service Providers(MSP), Integration Service Providers(ISP), Security Service Providers, Systems Infrastructure Service Providers (SISP), Network Service Providers (NSP).[lxv]

Chart 1 is a diagram that describes where various players reside. It helps provide clarity in defining and describing the xSP marketplace.

Chart 1: xSP Landscape



Source: J.P. Morgan Securities Inc. and Center 7.

Across the top is a rough breakout of the technology value chain, divided into four main columns: Access (facilities and bandwidth), Infrastructure (hardware and networking), Managed Services (application platform, operating system, database, application server), and Application (proprietary and third-party software). Within each of these columns, different types of service providers are illustrated. These are representative of the various types of value-added, specialized services that a number of firms provide. The specific functions illustrated in **Chart 1**, such as security, storage, and performance monitoring, represent some of the various types of activities for which MSPs take responsibility. Similarly, ASPs are focused on delivering application-level software functionality over a network to multiple customers on a subscription basis. Illustrated at the bottom of **Chart 1**, Systems Integrators can be involved in varying degrees throughout the top three levels of the stack. Network Architects are generally utilized in the middle of the technology stack, and Application Implementers focus solely on the software layer.

GROWTH IN XSP

Worldwide revenues for the xSP market will more than quadruple from $106 billion in 2000 to more than $460 billion in 2005.[lxvi] However, the maturity of this industry differs by segment. For instance, some NSPs have been successfully conducting business for decades. Consequently, the NSP segment represents the largest part of the overall xSP market with $100 billion in 2000 revenues, or 94% of the market. Yet, it is that maturity that will cause this segment to grow at a slower rate then other parts of the market. While the overall market will increase at a compound annual growth rate (CARG) of 33% form 2000-2005, the NSP segment will earn a CARG of only 15%, resulting in a declining market share.[lxvii]

> ***"xSP worldwide revenues will more than quadruple from $106 billion in 2000 to more than $460 billion in 2005."***
> *IDC*

On the other hand, ASPs are a very young segment of the xSP market that is expected to encounter substantial growth over the next few years as their business models evolve and the market becomes more familiar with their services.

In looking at the xSP market it is important to remember that many of its segments are new and still evolving. Industry standards or classifications are extremely obscure. Although there is variance among service providers' business models, many address the same markets and offers similar services.

This paper offers general guidelines relevant to each outlined segment to provide a better understanding of the typical services and elements of each. However, without established standards, participants within the industry are free to use their own discretion to classify the overall market, industry players, segments etc. As a result, there is a great deal of overlap that exists. Market projections and forecasts should therefore be considered rough estimates, which may vary among researchers, analysts, and industry players depending on how they define segments within the industry.

The traditional business model for ISPs, hosting companies, and telecommunications companies relied on the selling of raw bandwidth and access – services that today provide little differentiation. Fortunately, reselling hosted application services presents a tremendous opportunity for Service Providers. Continual movement up the value chain of services is the key to increase revenues and sustain profit margins in a market where raw bandwidth and access services are increasingly regarded as commodities.[lxviii]

APPLICATION SERVICE PROVIDER (ASP)

An application service provider manages and delivers software application capabilities to multiple entities from data centers across a wide area network. ASPs give customers a viable alternative to procuring and implementing complex systems themselves. ASP customers also are able to control more precisely the total cost of technology ownership through scheduled payment schemes. Though the ASP market is relatively new, computer industry analysts foresee rapid growth and multi-billion-dollar annual sales within the next few years. End users stretch cross industry lines from small office/home office clients to large corporations and from complex businesses to specific vertical companies.

An ASP manages the applications for its clients, taking responsibility for maintenance, upgrades, and storage of client data.[lxix] Some typical applications that companies are outsourcing to ASPs are: payroll, travel and expense accounting, product configuration, sales force automation, and e-commerce hosting. ASP clients are charged a monthly access fee to use the application.

The driving force behind ASPs is a movement within the technology industry from providing products to providing services. Analysts and executives agree that offering software via the Internet is the wave of the future. Some predict ASPs will eventually spark an irrevocable change in the way that all companies—regardless of size—buy technology.[lxx] Oracle President, Tim Chou, stated, "within 10 years, virtually all software will be delivered online."[lxxi]

> ***"Within 10 years, virtually all software will be delivered online."***
> *Tim Chow, Oracle*

DETERMINANTS OF FUTURE SUCCESS

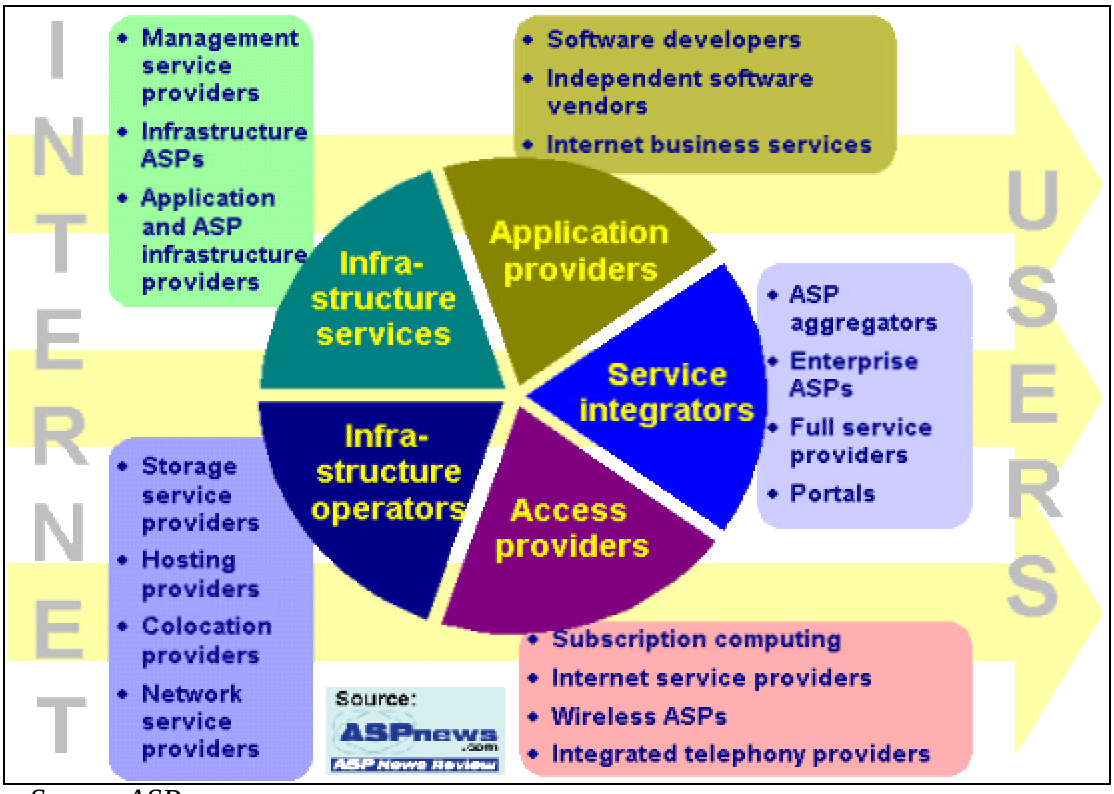
Within the ASP market there are advantages to being first to market and developing strong brand equity. Early entrance into the ASP market is one key determinant of success. With ASP services entail the transferring of critical data, clients often insist on developing a strong and trusted relationship with their ASP. Once this relationship is established clients are very reluctant to switch providers and risk having to move their data to a new environment.

However, being a first mover does not guarantee long-term success in this still emerging market. An IDC study of 23 leading ASPs revealed that companies in this market must first master the complexities of their business model—and most are still struggling.

Analysts have articulated that brand equity alone will not be enough to enable today's leaders to become tomorrow's mainstays. In order to succeed ASPs must be able to leverage the knowledge they acquire. "Today's ASPs are rapidly moving down the learning curve of a business model, the complexity of which shouldn't be underestimated. They're learning about the finiteness of partnering, the complexities of operations, and the importance of scalability. How well an ASP learns these lessons will be a key determinant to its future success," according to Meredith McCarty Whalen, manager for IDC's Internet Services and ASP research program.[lxxii]

MARKET PARTICIPANTS

ASPs are a very broad segment of IT outsourcing and xSP marketplace. They incorporate a number of different providers working to offer ASP solutions. According to ASPnews.com there are five primary sectors that contribute to an ASP solution. ***(See diagram below.)*** Application providers, service integrators, and access providers all have direct contact with the end user, while Infrastructure services and Infrastructure operators stay more in the background as operators of the Internet computing infrastructure.



Source ASPnews.com

Service integrators are the providers that end-user businesses recognize as ASPs. They bring together services for delivery as complete, managed solutions. They range in sophistication from enterprise ASPs to Internet portals. This category also includes more traditional types of professional services company, such as e-business integrators and full-service providers.

Application providers create the software and applications from which solutions are assembled. This category encompasses the software developers and independent software vendors (ISVs), whose products ASPs and service integrators deliver. The segment also includes providers who host and deliver their own applications as online services.

Access providers take care of the 'last mile' connection that allows users to access the network. This category includes telecom providers and Internet service providers, many of which bundle

access along with a basic suite of hosted applications. It also includes wireless ASPs, who deliver Web content and applications to mobile telecom users.

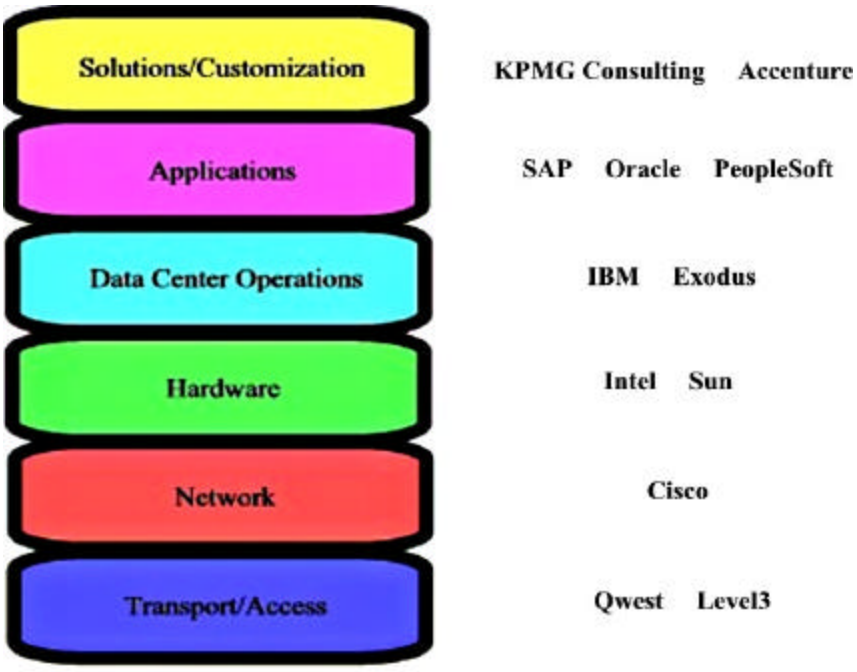
Infrastructure operators look after the physical backend elements of the network. They include the telecom providers who act as Internet backbone carriers, as well as co-location and hosting providers, who manage Internet data center facilities. Another group in this segment provides utility-style computing resources, such as pay-as-you-go storage services.

Infrastructure service providers make up the software and services layer of the Internet computing infrastructure. They include application and ASP infrastructure providers (AIPs), who operate hosting centers that are specially equipped for application hosting. AIPs often work with infrastructure ASPs, who deliver specific elements of the infrastructure, such as billing and metering, directory services, or payment processing. Management service providers, who specialize in remote management of IT systems, are another fast –growing group in this category.[lxxiii]

VALUE CHAIN

Effective delivery of an application via the Internet or private area network requires expertise in a number of different areas including: systems integration, customer support, network design, management etc. Vendors with specialized expertise in each of these areas are necessary to provide a complete ASP solution. **Chart 2** illustrates how various categories of service providers must be integrated across the entire technology value chain and function as a cohesive unit.

Chart 2



Source: JPMS

The foundation or bottom layer is the transport and access layer—were **Access Providers** exist—which is necessary to provide the connectivity. It extends into the networking equipment and hardware needed to actually store and connect to the software application and data that interact with it. This equipment is generally located and managed in secure data center facilities to ensure reliability and availability. It is at this level in the value chain that **Infrastructure Service Providers** and **Infrastructure Operators** function.

To complete the ASP offering, enterprise-level software applications are installed on top of this infrastructure. This software is obtained from **Application Providers**. The top level of solutions and customizations requires the services of **Systems Integrators** to tailor the applications and overall solutions to the individual customers.

This entire range of services depicted in **Chart 2** can be broken down into four main categories: Backbone (hardware and network connectivity), Ongoing Operations (management of the entire technology stack), Applications (enterprise-level software), and Services (customer and industry specific customization).

Backbone services and connectivity is a commodity-like business, with prices continuing to decline. However, value added services are dependant upon the infrastructure they provide.

BENEFITS OF ASPS

ASP clients enjoy a number of benefits as a result of renting their software applications.

- Increased Access
  - The emergence of ASPs made applications universally available, affordable and easier to deploy. Packaged applications enabled the small and medium sized businesses they are target towards, to sign up for more powerful, sophisticated applications than they would ever been able to own outright.[lxxiv]

- Upgrades
  - For individual companies, upgrading desktop and server software can be a long and expensive process. By contrast, an ASP can upgrade software on a much faster cycle, often with little or no interruption to service.[lxxv]

- Decreased Hardware Costs
  - With an ASP, companies do not need to purchase data centers, high-end servers, bandwidth etc. because all of the data is stored on the provider's servers in their data center.[lxxvi]

- Increased focus on core competencies
  - By off-loading the management of networks, computers, and software, business leaders can focus their time, energy and critical resources on their core businesses.[lxxvii]

- Access to expertise
  - With a shortage of IT talent, many businesses are unable to attract the talent necessary to maintain their IT operations. ASPs not only decrease the number of IT staff needed on hand but they also provide support services for all the applications they host.

- Decreased Ownership Risks
  - ASPs offer the opportunity to gain access to enterprise software while decreasing the risks of obsolescence and avoiding the costs of purchasing, installing, and managing that same software in-house.

- Time to Market
  - Without a rapid-implementation program such as Oracle FastForward, the length of time between purchasing and launching a packaged application suite can be as long as two years, depending on the project size, complexity, and number of consultants involved. For many companies two years is a lifetime. By using an ASP, a company can potentially get key business applications up and running in a matter of weeks.[lxxviii]

- Savings
  - ASP clients save an estimated 20-50% less then the continuing, demonstrable cost of ownership of the same application when purchased and operated in-house."[lxxix]

- Reduced Complexity
  - Buying software has always meant having to buy at once all the technology necessary to support it—networks, hardware, and support software. Clients utilizing an ASP are only responsible for paying a monthly fee.

Overall ASPs offer rapid implementation, flexible infrastructure, stable costs, and guaranteed service levels allowing executives to harness the power of robust applications without taking on the risk and dynamic costs, and crisis management internally.[lxxx]

DISADVANTAGES

- Upgrading
  - Although it may be a relief for companies not to have to worry about upgrading, it can also serve as an inhibitor to adoption of new technology. Companies contracting with ASPs must wait until the ASP itself decides to upgrade or modify the available applications

- Long Communication Chain
  - In order to answer the demand for bundled services ASPs are linking various specialty providers together in complex ASP supply chains. One partner may provide data storage, while another offers web-hosting services, and a third provides the applications. These partners then market all of these services in a package under one umbrella.

    When an ASP-hosted e-commerce site or application function goes down, CIO's are no longer able to communicate with in-house personnel handling the problem. As a result the CIO is unable respond to any type of internal complaint until the ASP responds to his/her complaints. With ASPs becoming part of complex supply chains of providers bundled together, the ASP may have to make quite a few phone calls itself to find out what's going wrong. This long communication channel can act as a substantial obstacle impeding the resolution of the problem, therefore putting the company's credibility at risk.[lxxxi]

- Lack of Customization
  - ASPs provide commodity versions of complex applications like ERP to many different customers omitting any significant type of customization. This is a particular problem for large enterprises with complex business processes and big portfolios of legacy applications that need to exchange data with the ASP application. For these companies, customization is absolutely necessary.[lxxxii]

ASP TYPES

ASPs can be broken down into five primary subcategories:

- Specialist ASPs- provide applications for a specific need, such as Web site services or human resources

- Vertical Market ASPs (VSP)- provide support to a specific industry such as healthcare

- Enterprise ASPs (Master ASP)- deliver high-end business applications

- Local/Regional ASPs- supply wide variety of application services for smaller businesses in a local area.

- Volume Business ASPs- supply general small/medium-sized businesses with prepackaged application services in volume.[lxxxiii]

Enterprise, Specialist, and Vertical Market ASPs are the most significant types of ASPs in the market; therefore, additional information on their respective business models and market segments is provided below.

SPECIALIST ASP

Specialist ASPs use a horizontal model to narrow the scope of their services in order to gain extensive expertise and experience in serving specific needs. As a result they gain an inside view into what customers will need next and how they can better serve them. Portera, Employease, Appshop and Digital River are some ASPs exploring business models built around specialization.

Company	**Focus Area**
Portera	IT & Managed consulting firms
Employease	Human Resources
Appshop	Oracle only
Digital River	E-commerce

Specialized ASPs Offering BPO Services

Mid-sized companies and those enjoying rapid growth are turning to Business Process Outsourcing (BPO) of non-core functions. They need Enterprise Resource Processing software (ERP) to streamline these processes but don't have the massive capital outlays in their budgets to purchase programs like SAP or PeopleSoft. So they are turning to Applications Service Providers (ASP) to supply a cost effective solution that can grow with their changing needs.[lxxxiv] Portera is an example of a company doing this ***(see the caselet below).***

PORTERA

Portera is an ASP specializing in providing business process applications to advertising companies, public relations firms, architects, lawyers and consultants. Portera has taken the non-billable, non-core functions of a service organization- like expense account reporting—and integrated them into a subscription service available over the Internet. Its enterprise applications and back-office support staff are available through a standard web browser for a monthly fee.

For example, Portera digitizes their client's paperwork by completing an on-line expense form for its clients' employees. The employees then review the completed forms from their Web browsers. If it's correct, they submit the form via the internet to their boss for approval. This process eliminates unnecessary paperwork and allows the function of expense reporting to be completed over the internet.

Portera CEO, Gary L. Steele made this comment on Portera's business model…
"The recipe for success for a BPO is applying technology to a business process. Then the BPO can use the resulting leverage to create cost effective efficiencies".[lxxxv]

VERTICAL SERVICE PROVIDERS

One of the most successful ASP models is the vertical service provider(VSP), targeting its services to specific industries.[lxxxvi] "VSPs combine Internet technology with deep domain expertise, relative applications and industry-specific content in branded, integrated solutions (Crosspoint VSP overview)." They also act as the main contact for all technology services that can be delivered over the Internet to a particular market.[lxxxvii] As a result, they are able to zero in on specific pinpoints by knowing an industry's specific needs and how these companies make purchasing decisions.[lxxxviii]

On December 12, 2000, in the midst of forecasts suggesting drastic economic downturns, Crosspoint Venture Partners, a 30- year old venture capital investment firm based in Woodside, CA, unveiled 14 investments in the VSP industry, totaling $350 million. Managing partner Rich Shapero said, "We believe the vertical model is where

Crosspoint Venture Partners unveiled 14 investments in the VSP industry, totaling $350 million.
www.cvcp.com

the true market lies. At the beginning, people developed a variety of general software building blocks that appealed to all businesses. But now customers want applications that are specifically targeted to their business environment." In all but one of the 14 deals Crosspoint was the sole first-round investor.[lxxxix]

ENTERPRISE/MASTER ASP

Master ASPs act as wholesalers of application functionality; working with service integration partners to tailor the generic functionality of applications to the specific needs of individual industries and enterprises.[xc]

This ASP model offers economies of scale of a shared infrastructure that delivers functionality on a one-to-many basis, at the same time as retaining the one-to-one tailoring and customization that individual partners can deliver to their specialist or local markets.[xci]

Master ASP partners usually have the option of branding the offering as their own, and sometimes add complementary functions or services. They also may have the option of providing frontline support and customer service elements, such as first-level help desk, billing and account management.[xcii]

In comparison to VSPs Master ASPs will not achieve the same margin levels as VSPs, but their ability to reach a broader marketplace enables them to scale up to much larger aggregate revenues and income.[xciii]

EOnline, operating in the enterprise ASP sector, is a current example of the form of master ASP being utilized today. EOnline's system integrator partners have complete freedom to configure the applications it offers, while eOnline maintains firm control of the underlying application system architecture. Many leading enterprise ASPs are developing similar models.[xciv]

"In the future, the evolution of the master ASP model may also give rise to providers who host a portfolio of online functions without packaging them into finished applications. It will be up to partners to assemble the available components into useful business service propositions. Such providers will still need to include a full selection of ASP infrastructure services, such as service level agreement (SLA), monitoring, metering, and billing functions. Understanding how to deploy and manage these essential ingredients of ASP infrastructure will remain a vital part of enabling the next-generation functional Internet."[xcv]

ASP OFFERINGS

Packaged applications – such as ERP and Windows 2000 that were minimally customized if at all

Vertical industry applications - such as documentation and management software for medical practices

Vertical industry portals- hosted B2B electronic commerce and provided industry specific software functionality

Horizontal portals – i.e. Logistics management, that provided specialized "niche" functionality that could be shared by companies across many different industries[xcvi]

INFRASTRUCTURE

The ASP model brings a number of changes to a business' information infrastructure in the areas of computer hardware, databases, general-purpose software, and information management personnel.

CHANGES

Organizations deploy two types of computer hardware, desktop workstations and larger server devices, which run applications and support databases. Use of an ASP will impact both types of hardware. First, desktop systems can become 'thinner' because the processing and application logic is contained in the ASPs data center. The desktop will also become increasingly standardized with organizations taking more control of software loaded on the workstations to ensure interoperability with the applications provided via the Internet. Second, there will be a decreasing need to purchase servers or mainframe computing environments, because the ASP will provide these services. Also, support staff and elaborate data center facilities will not be required in ASP adopters.

General Purpose software such as transaction processing systems, departmental systems, and office automation systems will reside at the ASP and be accessed via the network. End-user knowledge of the system's functionality will be required, however, training provided by the ASP rather than the in-house application support staff.

ASPs means fewer projects to manage, fewer staff members to hire, and a perception [that the IT department] plays a diminishing role in the organization.[xcvii]

INDUSTRY LIFECYCLE

In February 2000, the Outsourcing Center described the ASP market as taking off like a rocket. Companies in every industry were rapidly adopting this form of outsourcing, often overlooking the fact that it is still in its infancy and still evolving. ASPs were emerging at a time when dot

coms were exploding on every corner. The need for aid in managing e-commerce was compounding and Internet start-up companies were practically throwing money at evolving ASPs.

All of this was occurring at a time when venture capital money was running like water. Venture capitalists wanting to get a piece of the Internet frenzy were searching for Internet based companies to invest in. Analysts described venture capital money as burning holes in the pockets of hyper aggressive investors, and as a result new ASPs were springing up overnight to meet the need for leased applications.[xcviii]

The market potential was seen as so enormous that hundreds of companies were re-inventing themselves as ASPs and forming alliances with other entities in an attempt to become an ASP. Participants included Internet service providers (ISPs), hardware/network providers, software vendors, Internet e-commerce hosts and integrators.[xcix]

"The market potential was seen as so enormous that hundreds of companies were re-inventing themselves as ASPs and forming alliances with other entities in an attempt to become an ASP."
www.cio.com

At this point there are no established industry standards. Customers who outsource to ASPs selected a provider because of its well-known name and reputation, an outstanding sales presentation during the RFP procurement process, the low costs offered by the large number of start-up companies in the market, or even just the fact that a particular ASP is the only one offering the specific combination of applications the customer wants.[c]

CONSOLIDATION

"60 percent of about 480 current retail ASPs will be gone by the end of 2001 due to bankruptcy, lack of venture capital, mergers and traditional competition."
Gartner Group

One of the major problems within this industry was the influx of companies lacking expertise and experience with complex applications into the market. Late in 2000 when the economy started declining and moving towards a bear market, many of these start up ASPs, whose core competency wasn't application hosting, began to struggle.

For many ASP start-ups the downturn in the economy caused venture capital money to be shelved before they could really get established. Analysts have stated that one of the key factors contributing to the problems of many ASPs is the lack of capital. Numerous ASPs blew through their venture capital money on marketing, thinking that there was plenty more to come. Now that funding from venture capital firms has essentially disappeared, many ASPs are scrambling to survive.[ci]

These current obstacles within the ASP environment have lead many analysts to expect a large shakeout throughout 2001. The Gartner Group predicts that "60 percent of about 480 current retail ASPs will be gone by the end of 2001 due to bankruptcy, lack of venture capital, mergers and traditional competition."[cii]

HostLogic Inc. Hot Office.com, iSearch, Pandesic, Red Gorilla, ShopTok are all ASPs that have recently shut down due to problems securing funding. Agillion Inc. went up for sale on in March and laid off 25 of its 45 employees. Breakaway Solutions Inc. has endured two rounds of company layoffs since December and FutureLink is moving away from ASP model after reported $205.1 million fourth-quarter loss.[ciii] Interliant, ranked 3rd among ASP market leaders recently dropped its ASP division. Citing that ERP and CRM application hosting operations as "non-core" to its business.[civ]

Additionally, of those ASPs who are, only a handful have reached profitability. The majority are in the red and indicating to venture capitalists that they anticipate breaking even by the end of 2002.

Many argue, though, that this not a shake out, but a consolidation period that is healthy for the market. "With the recent downturn in the economy and dot-com tailspin, the e-playing field has not only become more level, but also more competitive. As the market regroups, a smarter, more resilient breed of ASPs will evolve."[cv]

Recent declines in the economy have not solely yielded negative consequences for the ASP marketplace. As company budgets tighten more and more, companies are taking a second look at ASPs and the potential cost savings they have to offer. Although, potential ASP clients are considering contracting with an ASP are proceeding with extreme caution.

The recent consolidation within the industry has yielded a great deal of negative press about ASPs. In speaking with ASP executives one of the greatest concerns their potential clients have is whether or not their ASP will be in business six or twelve months down the road. As a result, private ASPs have to disclose substantial financial information and documentation about their specific business model and vision for the future.[cvi]

The days of signing 20 companies in less than 90 days, as Oracle did in July of last year, are over. Potential ASP clients are scrutinizing potential buyers and getting companies to sign contracts is now taking 4-6 months instead of the one to two day agreements that were reached earlier in 2000.[cvii]

HYBRID - WEB HOSTING/ASP

Consolidation within the industry has left the door open for Web hosting companies looking to enter the market. Hostcentric and Hostpro are two web-hosting companies who have leveraged their established expertise and network infrastructures to enter the ASP market at a fraction of the costs startups incur. Large Web hosting companies can also launch ASP services in a fraction of the time it would take a startup because their existing business software is already capable of supporting a multi-faceted business model with a massive subscriber base.[cviii]

Web hosting companies also claim a significant advantage in their experience managing their own network and offering a full gamut of Web hosting services. Interpath is a Web Hosting

company who has shifted its business model to focus more heavily on ASP services rather then hosting. Interpath CEO stated, "Our hosting experience enabled us to better anticipate both customer needs and management challenges."[cix]

The synergy that exists between Web Hosting and ASP services allows these hybrid companies to cross-sell their ASP services to existing Web hosting customers while promoting their hosting services to customers initially attracted to their ASP offerings.[cx]

LARGE ENTERPRISES

Overtime we've seen a change in where ASPs have targeted their services. Initially, ASPs focused on small and mid-sized companies. Early on in 1999 this target market of small and medium sized businesses was characterized as a "golden opportunity".[cxi] The US middle market was 89,800 companies strong with combined IT spending of approximately $70 billion, a 20% increase over the year before with analysts saying that there were no signs of this growth letting up.

As the ASP market has evolved we've seen changes in the type of customers that many ASPs have been targeting. The ASPs that were lifted by the dot-com venture-backed customer base a year ago are now trying to regroup—if they haven't already gone under—and focus their efforts on large, enterprise clientele for 2001.[cxii] Corio and USI are two of ASP industry leaders who are focusing on the large enterprise market. Analysts agree that the once weary Fortune 500 CEO's are now warming up to the idea of ASPs. In part this may be due to the fact that company leaders have had time to sit back and watch how other companies like Hershey Foods, Providian Financial, and Leff Mason have made the ASP model work for them. Gartner analysts say, "It is safe and necessary for the Fortune 500 to start thinking about the ASP model because it will become an important part of the technology landscape for all enterprises."

> ***"It is safe and necessary for the Fortune 500 to start thinking about the ASP model because it will become an important part of the technology landscape for all enterprises."***
> *Gartner Group*

When marketing to larger enterprises, the role of an ASP changes. Big companies that possess their own IT infrastructures and staffs may need ASPs to fill small, specialized gaps in their application portfolios quickly.[cxiii] Unlike the small to medium sized businesses ASPs have been serving in the past, large companies are looking to satisfy a specific need rather than taking the whole package.[cxiv]

ASPs serving larger businesses will place a great deal of focus on integration, including alliances with systems integrators and consultants, and a larger commitment to global services.[cxv] Corio for example is teaming with Cap Gemini Ernst &Young to handle integration issues for larger clients. They say this is because systems integrators typically have a longstanding relationship with the customer, so they know the customer's specific business and technical requirements very well. They also bring a tremendous amount of industry expertise.

For large enterprises cost cutting does not serve as a driving motivation behind utilizing an ASP. In fact an examination of Fortune 500 outsourcing deals reveals that many did not prove to lead to lower costs. What ASPs do provide and what large companies are looking for from the ASP is accelerated time to market and an increased ability to focus on core competencies.[cxvi]

NECESSITY OF SOFTWARE DEVELOPMENT

Within the ASP industry there is increasing debate about the importance of ASPs developing their own software

Continue to provide packaged software

- Many ASPs have their roots in the software industry, and thus many already do develop the software that they deliver as a service. Since it is very important that the ASP is an expert in the software applications it delivers, software developers have an advantage here.[cxvii]
- "It will be very hard for these companies to find a space in the market that isn't already filled by a well-known vendor, and most companies are still making buying decisions based on brand name and looking for a hosting provider second"
- "ASPs executives working with established ISVs say software-development costs and the marketing muscle needed to promote a new offering could bury ASPs writing their own code."
- "ASPs that develop their own applications miss out on the distribution and marketing strengths of vendors"

Develop customized software

- "If you're an ASP and request a bug fix for a mid-market company, or if customers are asking for enhancements, the big vendors like Siebel and Oracle tend to place a low priority on it."

- Protagonists say that ASP advocates are mistaken about how to make money on such an arrangement. "It's too costly to host and expertly manage third-party software to build businesses that will continue to grow.[cxviii]

- "It didn't take long for the ASP business model to fall from the heavens," Gary Steel, CEO of Portera Systems, a 90-customer ASP that designs and hosts its own software for computer services organizations. He says that companies like USInternetworking and Corio are hosting [third party] applications that were never meant to be hosted.[cxix]

- Rich Shapero, Managing Partner of Crosspoint Investment firm, says he prefers to invest in companies that have their own applications and intellectual property. "The companies in the worst condition are those hosting software published by third parties. He suspects

that investors may start to bail out on many of the hundreds of ASPs that will soon be hurting "if all they're hosting is someone else's applications."[cxx]

He also stated that "the true value lies in the applications themselves, not the act of serving the Web. It can be expensive to lease or buy software from other companies, and this could reduce the margin anticipated for VSPs.[cxxi]

- One of the primary threats facing ASPs that host third party software is the potential of that third party to enter the ASP market independently. Initially, PeopleSoft licensed its software applications to a number of different ASPs. Those ASPs then solicited customers based on the premise that they could provide enterprise PeopleSoft software at an affordable monthly rate. Now, PeopleSoft itself offers ASP services, somewhat crowding the playing field. PeopleSoft does not want to have its own ASP services competing against other ASPs providing its licensed software. As a result, PeopleSoft is dramatically scaling back their application licenses.[cxxii]

When large software developers like PeopleSoft enter the ASP services market it creates a great deal of uncertainty. Although, there is some room in the marketplace for ASP services to be provided by both the software developers and software licensees, many developers like PeopleSoft do not want to be competing against themselves.[cxxiii]

CERTIFICATION

Due to the fact that the industry is still young and unproven, industry standards have yet to be established. Two examples of programs designed to weed out and strengthen ASPs with a strong potential to survive are detailed below.

MICROSOFT GOLD CERTIFIED PARTNER PROGRAM

Membership to this program is awarded to independent companies that have proven their expertise through certification and customer references in one or more specialized areas when delivering Microsoft technologies to provide IT services and IT products to mid-to-large market enterprise customers. Candidates for the certification must undergo a thorough on-site analysis of infrastructure, delivery methodology, and service practices conducted by Microsoft Corp. consultants.[cxxiv]

Microsoft Gold Certified Partners for Hosting and Application Services, receive benefits including usage of the Gold Certified Partner logo, priority lead referrals, early access to product information, and various business development and marketing activities reserved for Gold Certified Partners.[cxxv]

IBM ASP PRIME PROGRAM

ASP Prime helps developers accelerate their entry into the application service provider (ASP) industry. Qualified developers receive education, assessment, enablement, hosting, and launch assistance via a five-step process. To help ensure success, ASP Prime provides expert assistance, ASP business and technical assistance, and supports native applications running on Linux®, AIX, Microsoft® Windows NT®/2000, OS/400, and NUMA Dynix/PTX.[cxxvi]

At ASP Prime Solution Centers, qualifying developers have access to face-to-face technical counseling, hardware, and tools as they ready their Web applications for ASP hosting. A flexible, modular, selection of workshops are available to guide developers and benchmark their solutions in multiple scenarios for performance, scalability, availability, capacity, and load balancing in a secure network environment.[cxxvii]

INDUSTRY LEADERS

As of May 17, of this year the top 10 ASPs held a combined market share of 30%. The remaining 70% of the market share was held by well over 500 other ASPs with significantly smaller amounts of revenue. The majority of those 500 other ASPs are private.

> ***"The top ten ASPs who survive the current market consolidation will eventually account for 50-60% of a market with a forecasted value of $25.2 billion by 2005. "***
> *Gartner Group*

Some of the attractiveness of this market lies in the potential for the top ten ASPs who survive the current market consolidation to eventually account for 50-60% of a market with a forecasted value of $25.2 billion by 2005. According to analysts the current consolidation process is forecasted to leave only about 50 ASPs left standing.[cxxviii]

CURRENT MARKET LEADERS

Gartner Dataquest ASP top ten.

Company	Rank	Market Share	Revenue
USInternetworking	1	7.7%	$110 million
Qwest Cyber Solutions	2	7.0%	$100 million
Interliant (no longer an ASP)	3	3.6%	$52 million
PeopleSoft	4	2.8%	$40 million
Corio	5	2.3%	$33.5 million

Eonline, Breakaway Solutions, Agilera, Surebridge and Telecomputing made up the remaining five.[cxxix]

ASP PROFILE

ASPs typically employ between 20-200 people

Staff Profile

- Average IT Salary $70,940
- ASP industry average $79,632
- 48% of ASP industry employees had a Bachelor's degree as their highest level of education
- 59% of ASP industry employees had no certification prior to employment

FUTURE OF THE ASP MODEL

In a telephone interview on June 8, 2001, Michael Corbett a leading outsourcing expert and head of the World Outsourcing Summit, asserted that in order to survive ASPs will have to do more then simply rent third party software over the Internet. Numerous analysts and executives within the industry support this perspective.

Some emerging MSPs began as ASPs and the "ASP" model will ultimately amalgamate with MSPs. MSPs will become the standard way of doing business.
aspnews.com

As mentioned earlier, clients are requiring full solutions and industry specific expertise. The market for mass distribution of standardized software over the Internet will be short-lived. Therefore, the market will leave standing, those ASPs that provide vertical applications and services tailored to specific industries and those ASPs that evolve to provide an array of services, offering and end-to-end solutions.

In moving towards complete solutions, ASPs are encroaching on the space of the MSP marketplace. According to ASPnews, some emerging MSPs began as ASPs and the "ASP" model will ultimately amalgamate with MSPs. MSPs will become the standard way of doing business.

MANAGED SERVICE PROVIDERS

Managed Service Provider (MSP) companies deliver information technology (IT) infrastructure management services to multiple customers over a network on a subscription basis.[cxxx] These services can be preformed on or off site. Managed Service Providers can be hosting companies or access providers that are moving into next generation services such as IP Telephony, Messaging & Call Center, VPNs, Managed Firewalls, Server & Network monitoring and reporting and more.

MSPs operate similarly to Application Service Providers (ASPs) in that they deliver services via a network that are billed to their clients. The distinguishing characteristic between the two is that unlike ASPs, which deliver business applications to end users, MSPs deliver system management services to IT departments and other customers who manage their own technology assets.[cxxxi] ASPs target business processes associated with the applications they provide, while MSPs focus on operational processes.[cxxxii]

Managed service providers acting as the single source for a businesses data (databases, applications, authentication, intranet content, extranet content, etc.) must first and foremost, provide a secure environment for that data. Therefore, MSPs must properly backup all content and have a solid data recovery plan. Beyond data recovery, a true MSP, would also be the sole provider of connectivity services (internet, telephone, etc.) and must offer a redundant network that includes both multiple backbone connections and replacement parts and products in the event of any hardware failure.

MSP SERVICES

Typical MSP Services Include:

- Performance monitoring
- Network management
- Operational testing
- Intrusion detection
- VPN
- PKI
- Managed firewalls
- Vulnerability scanning
- Helpdesk
- Storage on demand
- Availability monitoring
- Service-level verification

Source: Meta Group

According to Meta Group, managed firewalls are being phased out as a standalone MSP offering. This is because hosting providers are dominating this particular service. Web monitoring as an MSP service is also losing ground as many Web hosting vendors step into the space. [cxxxiii]

The margin opportunity in managed services ranges from 60% to 80%.[cxxxiv] Although, opportunities in the network and desktop outsourcing services market are exploding. IDC expects the worldwide market to skyrocket from $14.3 billion in 1998 to $30.7 billion by 2003.[cxxxv]

> ***"IDC expects the MSP worldwide market to skyrocket from $14.3 billion in 1998 to $30.7 billion by 2003."***
> *IDC*

Areas that have strong potential for MSP success are: 1) VPN, 2) management of internal applications (those behind the corporate firewall) and 3) security offerings such as intrusion detection and vulnerability testing.[cxxxvi] Virtual Private Networks (VPN) is an area with immediate potential success for MSPs. Within a few years, Meta Group predicts management of internal applications (those behind the corporate firewall) as a strong seller. Additionally, once they mature, security offerings such as intrusion detection and vulnerability testing will succeed.[cxxxvii]

Consolidation - 25 % of the pure-play MSPs—MSPs whose entire portfolios comprise subscription-based management capabilities—will cease operations within the next year due to a lack of funding. They are anticipated to be a minority player in the market.[cxxxviii]

- Successful Services - Entrants to the Market-
    1) A number of larger and more established companies are actually expected to enter the MSP service space in the near future, including: traditional outsourcers, such as Computer Sciences Corp., EDS and IBM Global Services; systems integrators, such as Accenture and Deloitte Consulting; and hardware providers, such as Compaq Computer Corp., Dell Computer Corp. and Sun Microsystems. Additionally, hosting providers are expected to continue to add to their managed offerings.[cxxxix]

    2) 50% of large ISPs are expected to create MSP offerings within their service organizations by 2003.[cxl]

NETWORK SERVICES

A network is a group of two or more personal computers linked together. Many types of networks exist, but the most common types of networks are Local-Area Networks (LANs), and Wide-Area Networks (WANs). In a LAN, computers are connected together within a "local" area (for example, an office or home). In a WAN, computers are farther apart and are connected via telephone/communication lines, radio waves, or other means of connection. Computers on a network are sometimes called nodes. Computers and devices that allocate resources for a network are called servers.

Networks are usually classified using three properties: Topology, Protocol, and Architecture. Topology specifies the geometric arrangement of the network. Common topologies are a bus, ring, and star. Protocol specifies a common set of rules and signals the computers on the network use to communicate. Most networks use Ethernet, but some networks may use IBM's Token Ring protocol. Architecture refers to one of the two major types of network architecture: Peer-to-peer or client/server. In a Peer-to-Peer networking configuration, there is no server, and computers simply connect with each other in a workgroup to share files, printers, and Internet access. This is most commonly found in home configurations, and is only practical for workgroups of a dozen or less computers. In a client/server network, there is usually an NT Domain Controller, which all of the computers log on to. This server can provide various services, including centrally routed Internet Access, mail (including e-mail), file sharing, and printer access, as well as ensuring security across the network. This is most commonly found in corporate configurations, where network security is essential.[cxli]

The turmoil associated with the Telecommunications Act of 1996 and the resulting complexity, confusion, instability, and increased competition in today's telecommunications market is pushing companies toward network outsourcing. For companies in which telecommunications is vital, outsourcing is a safety net that they believe will guide them through a confusing and uncertain period.[cxlii]

TYPES OF NETWORK OUTSOURCING

Network outsourcing can be either full or selective. Full network outsourcing occurs when enterprises transfer all network equipment and network staff to the outsourcer. Full Network outsourcing may include the following network elements:

- Voice, data, and video networking
- Transport (Circuits), Hardware, Software and People
- Wide Area, Local Area and Internetworking

Selective network outsourcing is when an enterprise retains an ESP to operate and manage areas such as the LAN or WAN, or do performance monitoring of the company's service-level agreement (SLA) targets. Such activities are a form of outsourcing, but the company retains the staff.[cxliii] A Managed Network Service (MNS) provider is responsible for day-to-day monitoring of the network, the diagnosis, repair and replacement of network equipment. The MNS provider also supplies the network equipment, including routers and monitoring equipment. Small and midsize businesses with global operations can offload international networking chores to an MNS provider that will work with the individual country carriers, tackle the complexities of building and managing a global network, and handle each countries regulatory and technical requirements.

Selective network outsourcing and managed network services (MNS) are thus the prevailing models, and will continue to be so for the next four or five years. These models can meet companies' requirements with low risk while enabling the redeployment of scarce network staff

into more-valuable activities. By 2003, managed network services will be the services of choice in 80 percent of all wide-area networks (0.7 probability).[cxliv]

DESKTOP

Desktop management and maintenance is often included in network outsourcing services. A desktop delivers the essential components and resources necessary to operate and sustain a computing environment. Desktop services include:

1. Delivering the computing environment
2. Management of network resources
3. Management of hardware and software (desktop assets)
4. Providing help desk and maintenance support
    - Technical Assistance
    - Hardware Break/Fix Dispatch
    - Software Break/Fix
    - Password Resets
    - System Administration
    - Network Operations
    - Tailored Web Site[cxlv]
5. Routine maintenance and upgrading of the computing environment
6. Disposal of obsolete assets[cxlvi]

Companies looking to outsource their desktop functions have the same expectations as firms that outsource any IT function. Specifically, they require outsourcing providers to guarantee their services will meet the company requirements. They also look for a well-established track record to validate provider credibility.

DESKTOP MARKET PARTICIPANTS

Companies offering managed network services are drawn from the ranks of both the telecommunications industry and the IT industry. These providers focus on providing end to end solutions which includes management of all network infrastructure, usually from the WAN router out-wards from and organization, and associated services surrounding the transmission of voice, data, video and internet traffic.[cxlvii]

Traditional telecommunications companies, such as MCI WorldCom, AT&T, and British Telecom (BT) are moving into areas previously dominated by IT companies such as IBM, EDS, and network specialists such as Equant. Many of these companies are forming strategic alliances to capitalize on this converging marketplace. Such deals include AT&T's alliance with IBM and MCI with EDS.[cxlviii]

The top ten network and desktop outsourcing vendors control just more than 45% of global network and desktop outsourcing services revenues. IBM Global Services leads the market. Other major players include AT&T Solutions, Compaq, CSC, EDS, ENTEX Information Systems, GetronicsWang, Hewlett-Packard, Inacom, and Unisys.

COST OF SERVICE

The rapid changes in the IT industry, deregulation, increased competition, mergers, and acquisitions, are driving prices down. Network outsourcing vendors can offer companies savings ranging from 10% to 40%. Facing a potential 1000 percent increase in demand for network capacity over the next few years, unit-based pricing, most likely on a per unit basis, will become the norm.[cxlix] Most outsourcing firms calculate their charges on a "per desktop, per month" basis for LAN services. WAN equipment services are calculated on a "per network access device per month" basis. Getronics, formerly Wang, figures a typical client with a 5,000-seat operation might pay $80–100 per desktop per month for such services.

For example, depending on the level of service, the monthly WAN management fee from Getronics ranges from $150–225 per device.[cl]

VIRTUAL PRIVATE NETWORKS

A VPN is a network is constructed by using public wires to connect nodes. For example, there are a number of systems that enable you to create networks using the Internet as the medium for transporting data. These systems use encryption and other security mechanisms to ensure that only authorized users can access the network and that the data cannot be intercepted.

VPN adoption is anticipated to explode in the next few years, as managed full-service VPNs lay the foundation for enterprise application outsourcing strategies. xSPs can perform just about any business function, nearly to the point that a "virtual company" can exist, with almost zero staff. Today, virtual private networks (VPNs) are complementary user WANs rather than critical.

INDUSTRY GROWTH

The appeal of the MSP model is that it eliminates the need for companies and individuals to buy, maintain or upgrade IT infrastructure management systems, which typically requires a major capital expense, highly technical expertise, and a considerable investment of time. The number of companies interested in taking advantage of these strengths is on the rise.

Revenue projections for the MSP sector are estimated to reach $10 billion in revenue by the year 2004.

Market analysts expect the demand for Management Service Providers to grow exponentially as an attractive alternative to internally run IT management applications. Revenue projections for the MSP sector are estimated to reach $10 billion in revenue by the year 2004. [cli]

The need for impeccably functioning systems and networks, fueled by the burgeoning Internet economy, continues to raise expectations and requirements for robust performance. At the same time, the gap between demand and supply of skilled IT personnel, coupled with the complexity and expense of specialized system management applications, creates a formidable challenge for the administrative staff who are held responsible for efficient system operations.

MSP TYPES

Many companies call themselves MSPs and there are variations in the MSP model. Some MSPs provide tools and services, others services only, some target corporations and some are designed for consumers. (MSP AASOC) In order for an offering to truly be an MSP service, it must be independent of where the managed technology is located.[cliii]

Companies whose entire portfolios comprise subscription-based management capabilities are considered "pure-play" MSPs. Yet, it is anticipated that pure-play MSPs will become the minority player in the market as more and more large, established vendors begin creating MSP niches within their services organizations.[cliii]

MSP MARKET PARTICIPANTS

Much like the consolidation occurring within the ASP industry, the MSP market is in the midst of significant merger and acquisition activity. According to Meta Group 25 percent of the pure-play MSPs will cease operations within the next year due to a lack of funding.

Despite this consolidation there are a number of larger and more established companies are actually expected to enter the MSP service space in the near future. These companies include traditional outsourcers, such as Computer Sciences Corp., EDS and IBM Global Services; systems integrators, such as Accenture and Deloitte Consulting; and hardware providers, such as Compaq Computer Corp., Dell Computer Corp. and Sun Microsystems. Additionally, hosting providers are expected to continue to add to their managed offerings.(27)

Additionally, this model is particularly appealing to enterprises managing e-commerce applications, such as ASPs and Internet Service Providers (ISPs), whose expertise lies in the

applications they provide to customers, and to small and mid-size companies who prefer not to invest in a large IT staff. (MSP ASSOC) Consequently, we are seeing many ASPs adding to their offerings extensions that resemble MSP services. ISVs have also begun to enter the MSP space. Fifty percent of large ISVs are expected to create MSP offerings within their service organizations by 2003.(26)

EVALUATING MSPS

There are three key criteria that can be used to define top notch MSP. They are: management processes, the technology used and operational structure.[cliv]

MANAGEMENT PROCESSES

Management processes drive the repeatability and efficiency of an MSP offering. In order to provide the highest quality service, MSPs must have well-documented, easily communicated and repeatable processes. While MSPs must allow for customization, they must also strive for as much standard process as possible, enabling them to provide consistent support.

TECHNOLOGY

Most MSPs combined many different management technologies in addition to utilizing in-house technology developments. Although knowing every piece of technology used in a solution isn't vital, understanding the overall functionality of the final mix is.

OPERATIONAL STRUCTURE

The operational structure refers to three areas. First, the staff supporting the MSP should be well organized and certified in the technologies they manage. Second, the MSP's physical data center should ensure proper security provisions (i.e. redundancy). Third, staffing levels should be guaranteed.

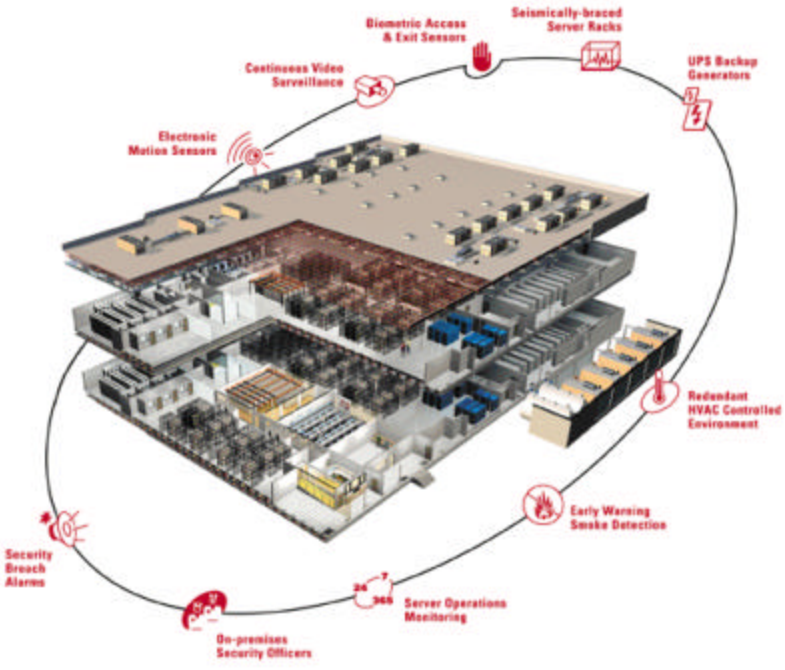
DATA CENTERS AND HSPS

THE EVOLUTION OF WEB HOSTING/HSPS

The number of people online and the length of time spent browsing increased dramatically since the advent of the Internet, creating limitless opportunities for merchants and advertisers. Traditional brick and mortar businesses and virtual vendors realized the immense potential of this mass Internet audience and established Web sites or virtual stores to sell their goods or services online. Faced with the need to establish a presence on the Web rapidly, companies found that they lacked not only the know-how, but also the physical space in which to install and manage their servers. They were also challenged with monitoring systems and providing technical personnel on a 24x7 basis. In addition, providing for the network scalability necessary to address peak periods of unpredictable and highly variably demand became prohibitively expensive for many companies.[clv] This has led many companies to outsource the management and maintenance of their Web sites to "Web masters" and fueled the growth of the Web hosting industry.

In the past several years, businesses have emerged with operating models that depend exclusively on the Internet such as Amazon.com, while traditional businesses, such as Barnes & Noble.com, are working quickly to establish a Web presence. Many companies establish their online presence with a simple, static "brochure" for marketing purposes. As they become more familiar with the Internet as a communications platform, an increasing number of companies are implementing more complex, mission-critical applications on the Web (including sales, customer service, customer acquisition and retention, employee communications and e-commerce between suppliers and business partners).

The most essential infrastructure for Web Hosters or Hosting Service Providers (HSPs) is the data center. A data center is a centralized storage facility used to retain database information.[clvi] Data center infrastructure includes raised floors, redundant power supply, climate control, fire detection and suppression systems, and security procedures/technology to provide secure data center access.[clvii]



The increasing breadth and scope of HSPs activities complicate the notion of what constitutes Web hosting. However, the core competencies of an HSP seem to revolve around data center-related services including servers, storage, Internet applications, and content management. According to IDC, HSPs provide services

related to the development, management, and maintenance of Web sites and Web presence. The components of a Web hosting solution include the physical infrastructure for housing the Web and application servers (Internet data centers), network connectivity within the data center and to the Internet, hardware and software (servers, operating systems, and applications), network management and performance related services (security, storage, load balancing, content delivery, and network monitoring), and professional services (consulting, design, and implementation). HSPs provide economies of scale with regard to data center infrastructure and bandwidth.

HSPs differ from ASPs because they focus on managed servers rather than on managed application services. Web hosting customers "plug into" HSPs data centers and networks rather than rent ASP offerings on a monthly subscription basis. [clviii]

WHO ARE HSPS?

Anyone with an Internet connection and a Web server can host a site on the Web to support Internet applications. Web hosting service providers are third parties that offer IT products and services to host others Web sites. They also maintain data centers that house their customers' servers. Many NSPs, or telecommunications companies, who acquired the successful ISPs with strong hosting capabilities offer hosting services. Major NSPs such as AT&T, WorldCom, and Qwest have developed hosting capabilities internally or have acquired existing HSPs. For example, AT&T acquired TCGCerfNet, WorldCom acquired UUNET, ANS, and CompuServe, and Qwest acquired Icon CMT.

GROWTH

Forrester Research estimates that the number of business Web sites in the United States is projected to increase to approximately 2.6 million in 2002 from approximately 650,000 in 1998, a 41.1% compounded annual growth rate. Correspondingly, the worldwide market for Web hosting and co-location should grow to $14.7 billion in 2003 from approximately $3.5 billion in 2000.[clix] IDC predicts the market for web hosting services to grow from $1.903 billion in 1999 to $24.801 billion in 2004. Small businesses with less than 100 employees, currently account for more than half of the U.S. Web hosting market and are expected to capture 61.7% of the total market in 2004. **Figure 5** below outlines the predicted revenue from web hosting services by server type.[clx]

"Small businesses with less than 100 employees, currently account for more than half of the U.S. Web hosting market and are expected to capture 61.7% of the total market in 2004."

Figure 5

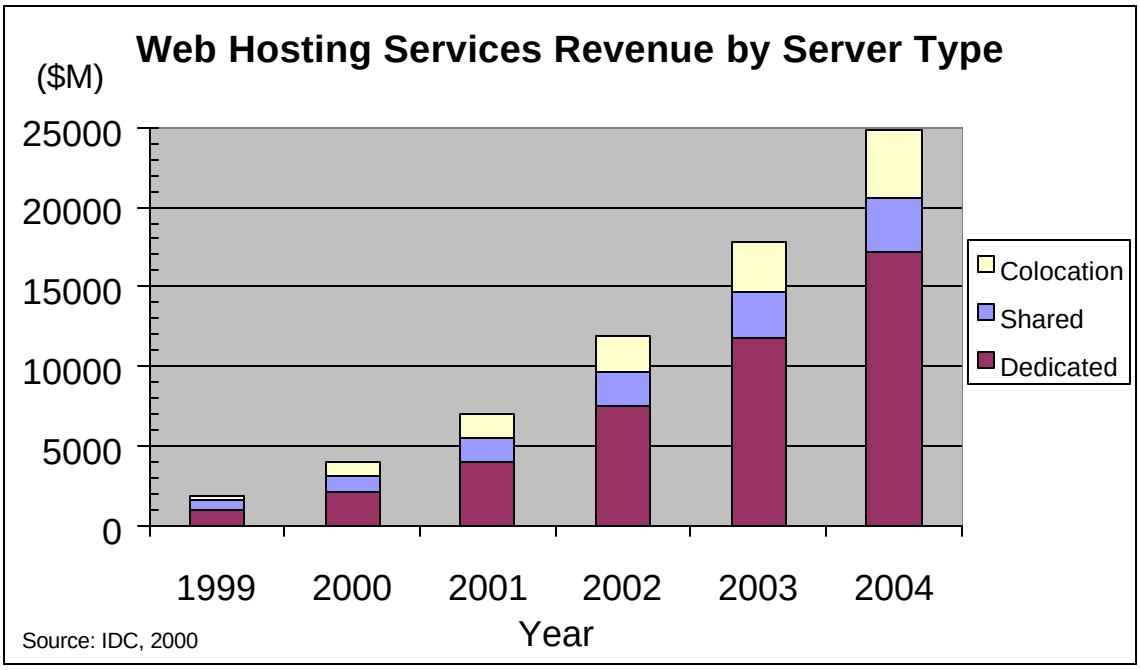


Exhibit 2 outlines the growth percentage of web hosting services by server type.

Exhibit 2

% Growth in U.S. Web Hosting Revenue by Server Type ($M)

	2000	2001	2002	2003	2004
Shared	84.6%	54.4%	43.9%	27.0%	22.8%
Dedicated	101.2%	94.0%	86.9%	58.1%	45.0%
Co-location	166.1%	66.2%	49.9%	41.3%	31.3%
Total	108.2%	77.8%	69.6%	49.2%	39.1%

Source: IDC, 2000

Over the last couple of years data center owners have been building new data centers to meet the high demand for hosting space and position themselves to capture a bigger share of the total hosting market. The end of 2002 anticipates data center space in the U.S. anticipated to grow from 33 million square feet to 66 million square feet.[clxi] As hosted applications and e-business take center stage in the Internet economy, control of data centers is a key competitive advantage.

UUNET and Sprint currently carry more than 50% of all Internet traffic. Sprint operates a 27,000-route mile OC-48 nationwide fiber optic network with more than 300 POPs (points of presence). Sprint is building nine additional data centers in the U.S. and internationally by the end of 2001. WorldCom/UUNET operates a global OC-48/OC-192 IP backbone network to which data centers are directly connected. The network has 2,500 POPs in more than 100 countries as well as metropolitan area fiber networks in major U.S. and European cities.

WorldCom/UUNET is currently building data centers and plans to have 42 to 48 worldwide by year-end 2001.[clxii]

LEADERS

The top ten leading U.S. based hosting service providers, based on revenue are:

1. IBM Global Services
2. Exodus
3. Verio
4. Qwest
5. UUNET/WorldCom
6. Digex
7. GlobalCenter
8. Genuity
9. AT&T
10. EarthLink

The Web hosting market remains fragmented despite the emergence of Exodus and IBM Global Services as leaders. Their leadership position can be attributed to their large and high-value customer bases.

TYPES OF HOSTING SERVICES

Even in web hosting, service offerings aren't defined in the same way—a standard service for one company may be an add-on for another. Despite these differences, there are three common types of hosting services: shared, dedicated, and co-location.

Shared Hosting entails sharing a single server's resources with other sites. Little investment is required to establish a site. However, as a company grows and site traffic increases, the company will encounter bandwidth and processor limitations associated with sharing a server.

- Shared hosting is an entry strategy for most companies and will not grow as fast as other hosting segments. Shared hosting customers are moving into the higher-value dedicated and managed space to grow with their customers.

Dedicated Hosting permits a customer's data to be accessed from a server that is rented or leased from their service provider. A dedicated hosting provider manages a company's site and servers with a guaranteed performance. Dedicated providers usually also offer a secure facility, and power and backbone redundancy. Dedicated hosting accommodates the addition of new applications and increased site traffic. Small and medium-sized businesses without the staff to manage their site and servers are ideal customers.

- Dedicated hosting will have a consistent share of about 50% of the total market through 2003. The simple, single-server segment will grow rapidly due to migration from the shared segment.

Co-location enables a company to use its own equipment including servers, hardware, and software while using the HSPs facility. Companies can take advantage of HSPs access to security-enhanced, reliable data centers, high bandwidth connectivity, and storage and backup services. Companies with the personnel to manage their own servers are the main customers.[clxiii] HSPs in the co-location segment are evolving from a "pure co-location" model (racks and pipes) to a "managed co-location" approach. In a "managed co-location" approach customers receive value-added services such as load balancing, storage, content deliver/distribution, monitoring services, and security.[clxiv]

- The co-location segment will experience significant growth based on three factors:

    - Co-location has the lowest barriers to entry for the new HSPs.
    - Co-location best serves ASPs, which will experience rapid growth.
    - Current co-location providers will incorporate elements of complex dedicated hosting to move upstream.[clxv]

Managed Web Hosting

Managed hosting may be classified with MSPs as well as HSPs. Managed hosting supplements the basic data center space and bandwidth solutions offered by co-location. Customers that need additional support in the management and operations of their Web systems use it. Specific tasks or a company's entire web hosting needs may be outsourced.

Vendors offer a complete end-to-end solution, providing all of the services and skills needed to manage and operate every aspect the customers Web site. Vendors ensure backup and continuous operation of the Web site. Vendors provide monitoring, load balancing, content management and distribution as well as application development and management services. For example, IBM Global Services, the leader in the industry, offers ready-to-implement solutions which provides the facilities, dedicated servers, software, enhanced security features, LAN, and flexible Internet bandwidth options for a monthly price.[clxvi]

Fully Managed Hosting

Fully managed hosting allows companies to outsource their entire hosting requirements. It includes everything from firewalls and TCP wrappers (filters TCP services for FTP and Telnet) to ethical hacking and incident management. High performance, high security, and high availability are characteristic of fully managed solutions. For example, IBM takes responsibility for the servers, operating systems, the Web server and applications. They also install and configure customers' database and application software.

DATA CENTERS MOVE INTO THE MSP MARKETPLACE

The Web Hosting Market—in which large data center owners and/or hosting firms exist--experienced a growth of 275 percent in 2000. This year that growth is predicted to dramatically taper off. Projections for the Web Hosting market in 2001 indicate a growth rate of only 66 percent, with most of the growth coming from managed services.

Initially, managed services were provided primarily by MSPs. MSPs, almost by definition, don't own data centers. Instead, they lease equipment from data center owners such as Exodus and WorldCom, and then sell Web-based managed services such as server maintenance and network security from the leased infrastructure.

Research analyzing the difference in revenues generated from collocation and collocation with managed services revealed the average revenue for basic collocation space was $18 per square foot; co-location with some managed services netted $67 per square foot; and pure managed service players extracted $212 per square foot.

With the economy slowing, customer bases shrinking because of dot-com failures and substantially higher revenues being achieved in the managed service sector data center owners are now eagerly looking to sell businesses the managed services themselves. Consequently, a battle within the industry has arisen between the MSPs whose business model is built on providing managed services from a leased infrastructure and data center owners who are adding managed services to their offerings.

MSPS VS DATA CENTER OWNERS/HOSTING FIRMS

Data center owners are gaining a presence in the managed services market in two ways.

1) Some are acquiring MSPs in order to bridge the gap. Metromedia Fiber Network for example acquired the MSP SiteSmith for $1.36 billion. Earlier this year MCIWorldCom acquired the MSP Digex.

2) Others are making room by restricting the amount of data center space they are willing to lease to third party MSPs.

   Coradiant is an MSP that rents space from WorldCom. Recently, WorldCom has unveiled a full line of managed services that directly competes with Coradiant's offerings. WorldCom has indicated that it will "absolutely [and] vigorously pursue any hosting customer that is looking for managed services." When Ron McMurtrie, V.P. of E-Services at WorldCom, was asked if WorldCom would grant any additional space to Cordiant, he responded "We would look at the space and make a decision if this would be the best investment for this space vs. filling it with our managed services."[clxvii]

CHALLENGES

Large data center owners entering the managed services market face a number of obstacles. The initial reaction of MSP customers to managed service offerings by data centers has been characterized as cautious at best"(30).

As outsourcing entails the transferring of mission critical data, business owners view an established and trusted relationship with the provider of their managed services as critical. Aptilon Health is a biotech-marketing firm that outsources management of its online operations to MSP Coradiant. Aptilon chief technology officer Mark Benthin indicated that if Coradiant and a WorldCom were to directly compete for his business he would rather move to another data center rather than risk ending his relationship with Coradiant. In order to change," WorldCom would have to build a relationship with us and that takes time" said Benthin .

SAVINGS

The real cost reduction in outsourcing is lowering the number of staff needed to support the in-house Internet data center. For example, in-house IT staff for Exodus customers accounted for 48.7% of their total cost. In IDC's study, companies that moved from managing their data center in-house to outsourcing the work experienced a reduction of server downtime by 88% and user downtime by 92%. Less downtime meant that the business was open for more hours each day, which is worth about $1.4 million per year in revenues per company. While the combined infrastructure and personnel costs from outsourcing are largest in the first year, if savings are equally divided over the three years, they average $52,045 per server annually. [clxviii]

COST

As companies upgrade their Web sites to handle more sophisticated applications, the average revenue per business increases from a low of $40 per month for a small enterprise with a simple Web site to as much as $52,000 per month for larger enterprises, according to a recent study by Deloitte & Touche Consulting.[clxix] In data centers specifically, data center owners in the U.S. will invest roughly $16.5 billion by the end of 2001.[clxx] An individual Qwest "Cyber Center" typically costs $40 million to $50 million to get started with a break-even window of 12 to 18 months, according to Kurt Cohen, vice president of hosting and co-location services at Qwest.[clxxi] A state-of-the-art Exodus 50,000 square foot data center requires approximately $15-20 million in capital expenditure.[clxxii]

Data Center customers pay monthly rates of around $750-1500 per month for a standard 34"x18"x72" rack.[clxxiii]

STRATEGIC ALLIANCES

As customer requirements increase in complexity and become more business-focused, HSPs will have to make strategic alliances. Alliances and partnerships also enables companies to engage in cost sharing and avoid steep technology learning curves for salespeople. In early 2000, Qwest and IBM entered a joint Internet data center build-out initiative in which IBM Global Services will build and manage the operations of 28 new Internet data centers, referred to as "Cyber Centers" by Qwest. IBM will be an anchor tenant in the Cyber Centers occupying at least 25% of the capacity. Qwest plans to have a total of 42 data centers in the United States and Canada by 2003.[clxxiv]

POWER

Metropolitan cities around the country are feeling the impact of their technology growth in the form of demand for electricity. Data centers can require up to 10 times more energy than commercial office space.[clxxv] "A typical server farm (data center) uses 10 to 20 megawatts of power per hour - roughly the equivalent of 10,000 to 20,000 homes with every light and appliance turned on," according to Jeff Monroe, VP of design and construction for Metromedia Fiber Network. Monroe adds, "On a watts-per-square-foot perspective, data centers are one of the highest energy users in any industry."[clxxvi] In August of 2000 the energy expense for data centers represented 60 percent of their total costs. The current energy crisis will affect the bottom line of these Web hosting companies.[clxxvii] Data centers are responding to the rising energy costs and need for a reliable power supply in four ways:

1. Charging clients more to cover the increasing energy costs

   "Some Web Hosters have mentioned that they are looking to do price increases this year, targeting high-power-usage Web sites" IDC predicts that these hosters will introduce some changes in they way their pricing model works."[clxxviii]

2. Relocating to areas with lower power costs

   "Web hosting stalwart Exodus has been rumored to be looking to locate data centers outside of California due to skyrocketing rates and issues surrounding deregulation of the power industry."[clxxx]

Exodus: "Web hosting stalwart Exodus has been rumored to be looking to locate data centers outside of California due to skyrocketing rates and issues surrounding deregulation of the power industry."[clxxix]

3. Seeking Alternatives Means to Meet Energy Needs

   US DataPort is building a 2.2 million square foot data center facility in San Jose.[clxxxi] The facility will utilize an excess 150 megawatts of power. A natural gas generator will produce forty-nine megawatts of power. DataPort is also exploring the use of diesel generators as a source of additional power.

Ashburn VA-based UUNET is exploring the option generating its own power through the use of turbine generators.[clxxxii]

4. Considering building their own power plants

Exodus and U.S. DataPort are two companies exploring the possibility of building their own power plant. In some locations, they are merely waiting for a building permit. U.S. DataPort server farm located in Virginia is scheduled to open early 2002. The Virginia server farm will have its own generating plant costing $300 million to build, approximately 21% of the total cost of the data center. This has the potential to change the way the industry works. In the past data centers located where demand was the highest. Now clients may have to give up their need for proximity or move to where the data centers are.

PROXIMITY

With no single point of failure several analysts believe companies will no longer require data centers to be geographically close. As "truly redundant" data centers establish good track records and build client trust, proximity will become nonessential.[clxxxiii] However, our research revealed that proximity is still an issue for several companies. For the most part, companies are not required to be in close proximity to their data center. Nevertheless, they demand their data centers be located within the same geographical region. This may be psychologically based—with proximity comes security, increased sensitivity to clients needs from the support staff, and the ability to be close in the event that something goes wrong.[clxxxiv] Consensus among industry executive revealed that small companies and start-ups prefer to be geographically close to their data centers. Co-located companies—who must manage and maintain their own equipment—also have a need to be geographically close. On the other hand, large companies are less concerned with being geographically close to their data. Although data centers are a necessary infrastructure foundation, companies generally do not follow data centers but data centers follow companies.

Data centers are commodities and as such are differentiate based upon price. As you get higher up the value chain and your needs for security of information as well as the reliability of the service become more important than they become less of a commodity and business is won based upon reputation and track records. Customers want to know that professionals are managing their information. Thus, large well-known companies are getting the majority of the business. This is only one explanation for the success of data centers run by well-known companies. Well-known companies are also succeeding due to their deep pockets. The roots to this tree lay in the fact that if the client company had a need to hold the data center company liable for damages a small cap data center would not have the means to reimburse the client for damages.

NETWORK SERVICE PROVIDER (NSP)

Network service providers are comprised of telecommunications companies and data carriers; wireless-communications service providers, Internet service providers and cable operators offering high-speed Internet access. Telecommunications is the transmission of voice, data, text, image, video and any other information in electronic form, whether it is transmitted via cable, fiber, radio waves or other medium. Convergence, consolidation, deregulation, have changed the world of Telecommunications more in the past few months than at any other time in the last 100 years.

Telecoms with deep pockets and existing infrastructure are taking over the xSP market place. They sell bandwidth and network connectivity to ISPs, HSPs, ASPs, MSPs, etc. NSPs are more commonly referred to as backbone providers, because they offer direct access to the Internet backbone and the Network Access Points (NAPs).[clxxxv]

The Internet business population has shifted its focus from growing the quantity of online companies toward enhancing the quality of current business sites through new e-commerce technologies and applications. This drive toward e-commerce has specific effects on the network requirements of Internet businesses. Elevated Web site traffic levels and the new mission-critical status of commerce applications demand that companies find reliable network solutions to meet multi-faceted demands for availability through redundancy, distribution, scalability, and expertise. Companies who do not find network solutions to meet these demands face high risks, such as prolonged or unexpected downtime, that may detract users from their Web sites, lower revenues and destroy market share and customer confidence. [clxxxvi] Thus, a well-designed backbone and comprehensive network is imperative for successful e-commerce applications.

As more and more sites adopt e-commerce applications, network infrastructures must be carefully designed and continuously monitored to meet increasing availability needs through "true" redundancy, scalability, and expertise.

- Redundancy—"True" redundancy literally means two of <u>everything</u> not just two Internet connections. It also entails redundant cooling systems, power supply, and every point of primary failure. Many vendors advertise their redundancy; however, in most cases, they do not provide "true" redundancy. Large companies also achieve redundancy by using multiple data centers to house information. The use of multiple centers decreases the statistical probability that the company will lose information in the event of a data center failure.[clxxxvii]

- Scalability—"Poor or inconsistent performance is the number one reason surfers abandon a site," according to Forrester Research. If a network cannot scale quickly and conveniently to meet sudden surges in traffic, users will frequently opt not to wait, leaving a Web site with lowered opinions and little confidence in the company's ability to deliver. To avoid this, a network must be built to offer excess capacity at all times with burstable bandwidth to accommodate unexpected upswings in site traffic volume.

- Expertise—When choosing an outsourcing provider for network services, companies must consider expertise one of the highest priorities. A well-designed network is nothing without the staff required to maintain it at all-times.

The emergence of mission-critical Web sites and costly potential mistakes attest to the need for a reliable backbone. For example, Dell realizes more than $3 million of revenue through its site each day. A one-hour glitch with dell.com costs the company more than $125,000.[clxxxviii] With a commerce site, connections to back-end systems must never go down. Customers will not wait two weeks while a backup line or new switch is installed. If a site is not available at all times, companies may lose customers, revenues, and reputations. Therefore, the connections and equipment used at the LAN (which directly links a company to the Internet), the location of LANs, and peering agreements are crucial in ensuring maximum uptime for 24 x 7 Web site operations.

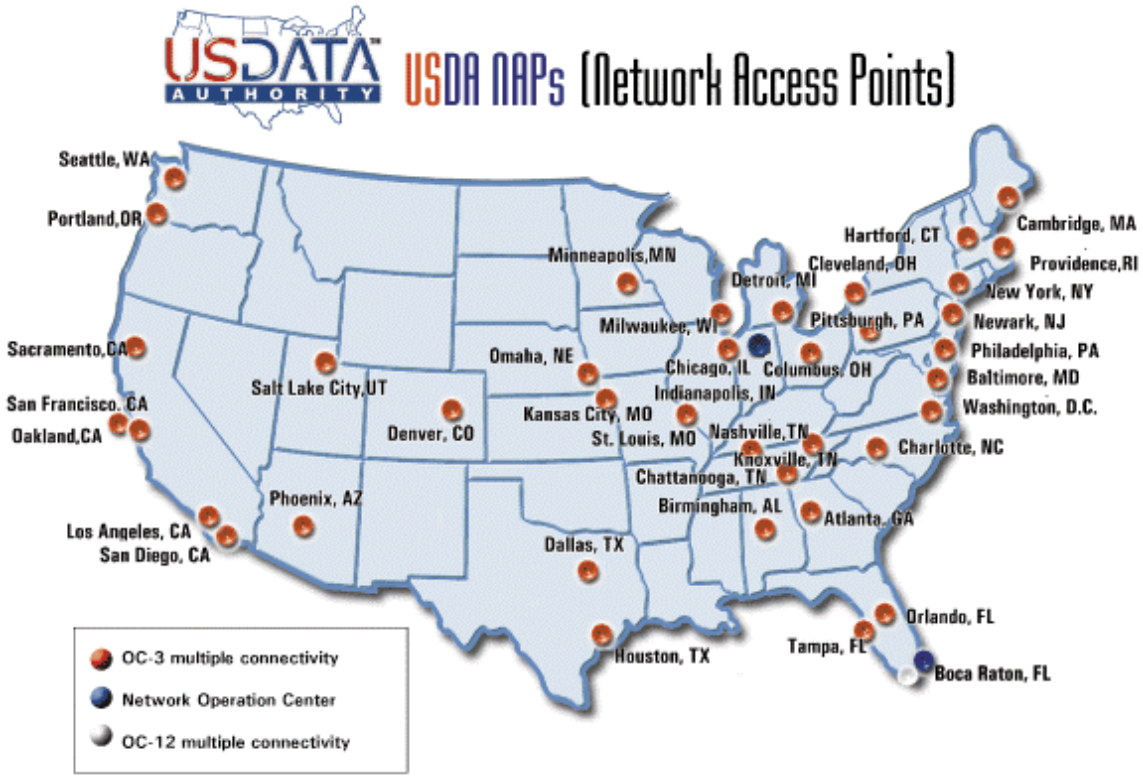
PEERING, NAPS, AND MAES

The Internet functions only because network providers agree to exchange traffic across their networks. These agreements are made in the form of peering. Unlike the client-provider relationship—where a larger company leases its network infrastructure to a smaller company for customer payments—peering agreements occur between companies who are equals, or peers, to one another. Public peering occurs at Internet Exchange Points (IXPs) or Network Access Points (NAPs) where numerous companies install connections to a common network device. Traffic can then be distributed between all network providers at each point, increasing overall bandwidth and accelerating content delivery. Backbone operators agree to create a direct link between each other and agree to forward each other's packets directly across this link located at NAPs.

Public peering occurs at Internet Exchange Points (IXPs) or Network Access Points (NAPs) where numerous companies install connections to a common network device.

In the early 1990's the NSF (National Science Foundation) awarded contracts to companies in an effort to replace NSFNet (the original internet backbone) with a commercial Internet backbone located at NAPs. Since then other NAPs, MAEs (Metropolitan Access Exchanges) and private and public Internet exchanges have appeared. NAPs and MAEs are traditionally the largest point of Internet congestion. The Internet backbones ultimately interconnect with each other at NAPs through Internet Routers. **Map 1** below, obtained from the U.S. Data Authority website, depicts the NAPs in the continental U.S.

Map 1



Network Access Points http://www.usda.net/naps.htm

There are five Tier-1 NAP's in the United States. NAPs are run by commercial companies like Sprint, MCI, and Pacific Bell (now SBC). The big five are located in San Francisco, Chicago, New York, Sterling, VA, and Miami (summer 2001). **See Map 2.**

Map 2
Public Tier-1 NAPs

http://www.terremark.com/Content.cfm?PID=30

The NAP of the AmericasSM located in Miami, Florida is the next-generation carrier-class facility, able to handle ten times (10X) the bandwidth of any of the existing Tier-1 NAP's. The network architecture of the TerreNAPSM Data Centers boasts an efficient high-speed parallel cross point switch fabric. This fabric has a capacity of up to 96,000,000 packets per second of throughput.[clxxxix]

Many routers are stationed in each of the NAPs serving each of the individual backbones. These routers act as traffic directors looking at the destination of each packet of data and directing it to the proper backbone where it is then routed to its final destination. Multiple interconnected backbones provide redundancy and speed. When the Internet is congested, data normally routed on one backbone can be transferred/shared by another backbone. If one backbone becomes inoperable, all the data can be rerouted to another backbone. Redundancy also protects company's routers and firewalls.

All Internet connections are theoretically connected to these five main NAPs. However, "hot potato routing" networks allow routers to find the quickest way to a destination, which may mean they bypass one of the big five NAPs.

A relatively new form of high-speed networking protocol routing technology, Asynchronous Transfer Mode (ATM), allows you to get to your destination on more than one path simultaneously. This results in better redundancy and quicker access time.

A company called Metropolitan Fiber Systems (MFS) developed an alternative to the NAP system. Their method wires up an entire city via a complicated and in-depth array of fiber-optic

connections called Metropolitan Area Ethernet (MAE) connections. A MAE is a large Network Access Point (NAP). It is the MFS facility where ISPs connect to each other to exchange Internet traffic—an Internet networks traffic exchange facility. MAEs act as a LAN switch where all the "pieces" of the Internet connect together in order to exchange traffic at high-speeds. MFS owns and operates the switching platforms used to interconnect the various ISPs. These devices enable a range of speeds and connection types from 10Mbps Ethernet up to 100Mbps FDDI. MAEs provide tremendous redundancy and offer inexpensive connections to corporations operating in that city.

MAE and other Internet traffic exchange points (e.g., NAPs and the CIX) are not connected to each other by dedicated links. If an ISP needs to have connections to multiple MAE locations, then the ISP will build their own backbone network using other services such as a high-speed LAN Interconnect Ethernet connection or private lines.

MAE LOCATIONS

- San Jose (MAE-West)
- Los Angeles (MAE-LA)
- Houston (MAE-Houston)
- Dallas (MAE-Dallas)
- Chicago (MAE-Chicago)
- New York (MAE-New York)
- Washington DC (MAE-East)

All are operated by MCI WorldCom. [cxc]

INTERNET BACKBONE

In order to bring IT outsourcing companies to Utah, a strong Internet backbone with redundancy is essential. Data centers are especially reliant on a fully redundant network or backbone infrastructure. The Internet backbone is the physical network, usually composed of a number of high-speed fiber optic cables, which carries Internet traffic to networks worldwide. In the April 2001 Metropolitan New Economy Index, Salt Lake City was ranked number 1 in the nation with 103 Mbps of Internet backbone capacity per 1,000 employees. Kansas City, ranked second, was 78 Mbps. (Atkinson & Gottlieb, "The Metropolitan New Economy Index." April 2001. p. 28)

Within the U.S. there are numerous high-speed cables, owned by major communications companies such as GTE, UUnet, AT&T, MCI, Sprint, and Verio. There are well over 50 others who also own their own Internet Backbone. Each of these carriers, called Tier 1 carriers, allow smaller carriers to connect to it for a fee. Smaller carriers, or Tier 2 carriers, provide service to many of the local areas. Even smaller companies, or Tier 3 carriers, will connect to Tier 2 carriers. As one gets further from the Internet backbone, data lines are slower and usually are not connected by fiber optic lines.

OC3, OC12 , and OC48 lines are the most prevalent lines. The table below shows the speed (in megabits per second) each type of cable is capable of.

Internet Connection Type	Bandwidth
DS1 or T-1	1.544 Mbps
DS2 or T-2	6.312 Mbps
DS3 or T-3	44.736 Mbps
OC-1	51.84 Mbps
OC-3 or STM-1	155.52 Mbps
OC-12 or STM-4	622.08 Mbps
OC-24	1.244 Gbps
OC-48 or STM-16	2.488 Gbps
OC-192 or STM-64	10 Gbps

1 Byte = 8 Bits
Gigabit = millions of Bits

Vallance, David A. "An Overview of the Hosting Industry and Web Hosting."

OC12 and OC48 lines are used to cross the continental United States intersecting at major Network Access Points. T3 and OC3 lines generally connect data centers to these backbones. In Utah, documentation of the Internet backbone, available cable, and carriers/providers is currently taking place. Upon completion, companies can access available bandwidth, carriers, etc. in specific location via the Internet. Below are the most up-to-date maps of Internet infrastructure in Utah.

BUSINESS PROCESS OUTSOURCING

In Business Process Outsourcing or BPO a company outsources specific business functions and daily tasks to another company to enable them to maintain focus on their core competencies as well as cut costs. Eliminating business processes allows technology firms the time and resources to focus on becoming world-class.

BPO is one of the most important and fastest growing segments of outsourcing. Business processes cover services in human resources, finance, administration, payment services, and customer relationship management.[cxci] Although important to the business, these processes are considered non-core functions and it is not crucial for them to be done in house. David Schnitt, CEO of Ledgent Inc., finance and human resources outsourcing provider in Torrance, CA, says an IT outsourcer focuses on IT life cycle management and PC uptime, whereas a BPO vendor manages people and processes.[cxcii]

EXPLANATION OF THE VALUE CHAIN

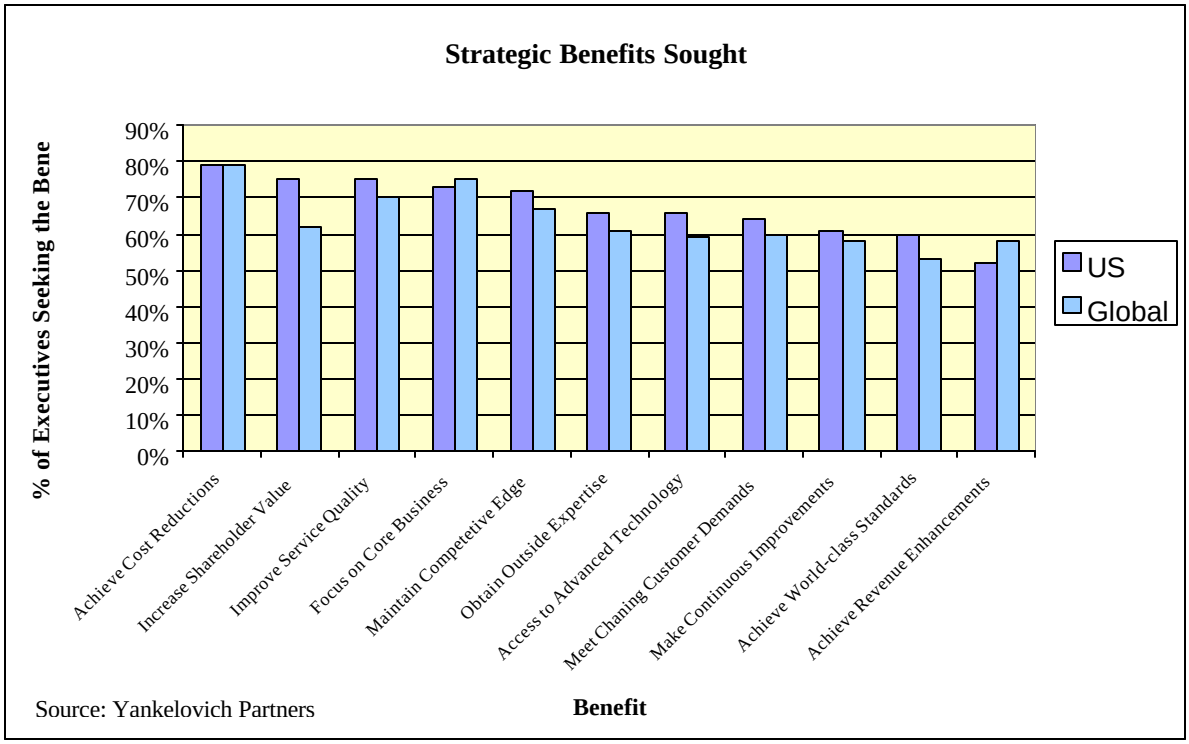
The value chain is the process by which a business takes raw materials and adds value to them through a series of actions. It ultimately connects the consumer to the producer. The value chain as it relates to business process outsourcing is invaluable because of the potential savings it can provide. Savings achieved through outsourcing business processes, such as financial and human resource related activities, can be as high as 15%.[cxciii] BPO companies add value by allowing other companies to produce more efficiently, thus adding value to the end consumer.

BENEFITS

Customers of outsourcing firms are looking for expertise, flexibility, cost reduction, and lasting mutually beneficial relationships. The ability to focus on core competencies is the most common reason for BPO. Rebecca Scholl, senior analyst for Gartner Dataquest's IT services worldwide group said, "Long-term economic trends are creating an environment where companies need to focus on their core competencies and seek outside specialists to access world-class processes in non-core, yet strategic functions."[cxciv]

In a survey conducted by Yankelovich Partners and sponsored by PricewaterhouseCoopers, executives from 102 US companies were asked what strategic benefits they expected to see through outsourcing business processes and compared these to the worldwide results of the same survey conducted in Canada, Australia, Europe, South America, and Japan.[cxcv] These results are presented in **Figure 6**. Achieving cost reductions was the strategic benefit most sought after, followed by increasing shareholder value and improving quality of service.

Figure 6



Source: Yankelovich Partners

GROWTH

BPO is changing and growing as technology advances. According to Dataquest, Inc. the business process outsourcing (BPO) segment is expected to grow from $125 Billion in 2000 to over $300 Billion by 2004. Finance, accounting and human resource outsourcing will continue to experience the most growth. IDC estimates the US market for HR outsourcing services alone will more than double its in the next five years, reaching approximately $46 million by 2005.[cxcvi]

It's also important to note that many BPO services are not impacted severely by an economic turndown, which makes them one of the most attractive investments in the IT services landscape."

Bill Derin, CE Unterber, Towbin's outsourcing services analyst, says, "We believe customer acceptance and the overall growth of BPO should continue to be more stable and steady than other technology/Internet service sectors given that: 1) BPO is a natural extension of a proven technology outsourcing market, and 2) the success of a couple older niche BPO vendors, such as ADP and Paychex in payroll.[cxcvii] It's also important to note that many BPO services are not impacted severely by an economic downturn, which makes them one of the most attractive investments in the IT services landscape

Consolidation of services is has fueled this growth. Also, companies who have had positive and successful experiences in outsourcing selected business processes are more likely to outsource other non-core functions. This has evolved into companies offering bundled services. For example, Automatic Data Processing (ADP), a leader in process outsourcing, offers numerous services including:

- Payroll, Human Resource, and Benefits Administration
  - Payroll
  - Tax & Compliance Management
  - Retirement Services
  - Recruitment Services
  - Time & Labor Management
  - Professional Employment Services (PEO)
- Securities Processing and Investor Communications
- Auto/Truck Dealer and Manufacturer Systems
- Property/Casualty Claims Management Solutions[cxcviii]

Many companies prefer a single outsource provider to provide them with all of the services related to finance and human resource services. Industry leaders have experienced average yearly sales growth between 15% and 40% over the last five years.

FIRST MOVER ADVANTAGE

Advantages for first movers in business process outsourcing are debatable. The continual growth of the industry, the ongoing need for nonessential business outsourcing, and the vast range of industries served complicates the process of analyzing the first mover advantage. In the overall outsourcing industry, a first mover has the advantage of being the first to establish lasting relationships with client companies. However, some functions, such as exclusive payroll services are commodities. The only differentiating characteristics are price and degree of accuracy. In this case, a first mover may encounter several difficulties, whereas imitators can enter the market at a higher point on the learning curve. These imitators or second movers can capitalize on first mover mistakes enabling them to provide the same or superior service at a lower cost.

ECONOMIES OF SCALE

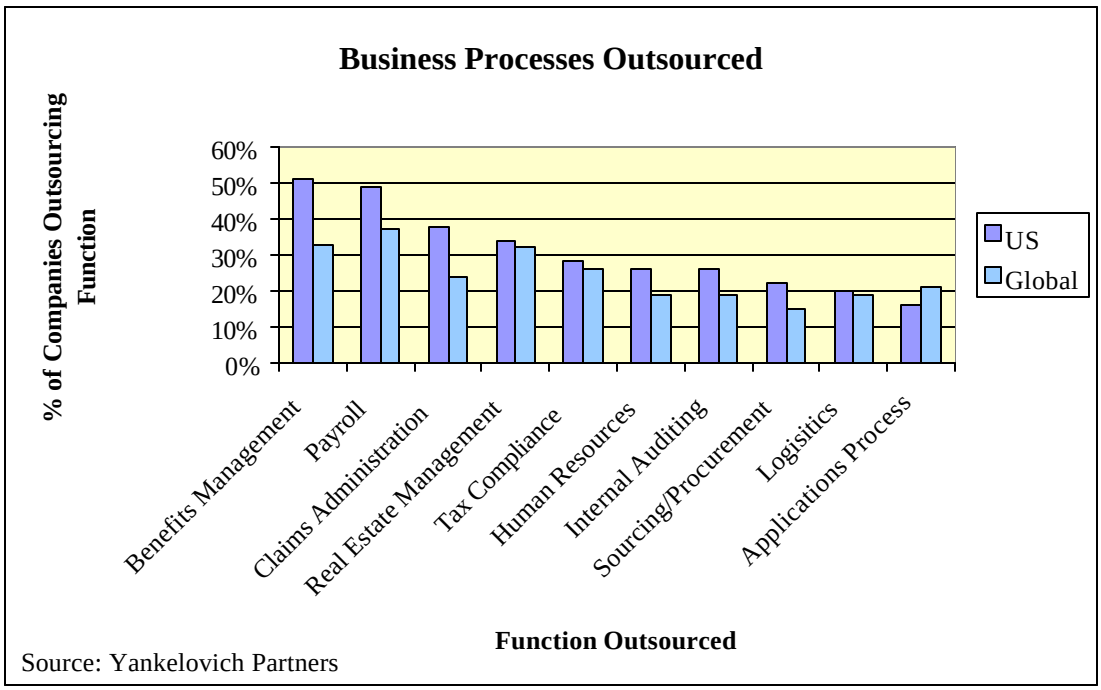
Economies of scale are extremely prevalent in the business services arena. Economies of scale occur as the BPO company increases its efficiency in handling many transactions and services thereby allowing small clients to benefit. BPOs achieve economies of scale through volume and experience. Companies who are buyers of BPO can have the best people handling their business processes without committing to extra infrastructure or people.

The concept of a professional employer organization (PEO) is a growing trend in BPO. These organizations are multi-service human resource/finance providers. They act as co-employers to the employees of company for small and medium sized companies. They provide services for everything from selection and training to administration of pay and benefits. Customer companies and the BPO companies benefit from economies of scale in this branch of outsourcing also. For example, many BPO companies offer benefits/retirement administration. Many small companies do not have enough volume to participate in health plans or 401(k) programs. By purchasing the services of a BPO, a small company joins many other employers in a PEO. Together these companies can obtain a health plan, a 401(k), and the expertise of a BPO provider. PEOs provide small and medium size businesses all of the benefits of a large company's human resource department without directly hiring the personnel.

SUB SEGMENTS

Based on PricewaterhouseCoopers research, approximately two-thirds of the world's leading companies have outsourced a business process in the past and were content with the results. Yankelovich Partners, sponsored by PricewaterhouseCoopers, conducted a study of what business processes were outsourced by 102 U.S. companies in 1998.[cxcix] The results are depicted in **Figure 7** below. In the U.S., benefits management (51%) was outsourced the most followed by payroll (49%), claims administration (38%), real estate management (34%), and tax compliance (28%).[cc]

Figure 7



Source: Yankelovich Partners

BPO is just one of many segments in the outsourcing industry (***see Appendix 3***). Many of these segments are vital to the success of a developing technology center. Each of these segments also has sub segments within them, including Business Process Outsourcing. Three major sub segments exist within BPO. These sub segments and the services performed within them are categorized below.

- Human resource services
  - Documents – employment documents (I-9, W-4 etc)
  - Compliance – employment actions are in line with government regulations
  - Job Descriptions – preparation of detailed descriptions of job requirements
  - Resume Review – screening of applicants for interviews
  - Interviewing – handling process of screening interviewees for possible employment
  - Profiling
  - Salary Information
  - Advertising
  - Background Checks
  - Pre-Employment Testing
  - Drug Testing

- Finance/Accounting
  - Payroll

- Unemployment Insurance
- Taxes/Filing

- Logistics
  - Transportation management
  - Warehousing management
  - Order fulfillment
  - Freight forwarding

BPO IN UTAH

G2 Research, a Mountain View, CA based computer market research firm, estimates the annual growth rate of the BPO market at 20%. According to annual reports, two of the large players in the BPO arena, Administaff and Paychex, have sales growth rates averaging 21+%. Attracting these companies such as these to Utah would provide many job opportunities. Although ADP and Paychex currently have offices in Salt Lake City, a larger presence could be established. Staff Leasing serves clients in Utah, but does not have a presence.[cci]

TRENDS

PRNewswire via Comtex cited Dave Carlson, CEO of the AAC Group, who stated that a significant portion of HR outsourcing growth will be attributed to "co-sourcing," an innovative outsourcing approach that combines the tools and services provided by a vendor with a company's own employees, enterprise applications or other existing systems. Vendor services can range from software to service center infrastructure.[ccii]

Logistics is experiencing growth due to the integration of the Internet into business and the increasing popularity of e-commerce and e-business. Many dotcoms realize focusing on marketing will not keep business alive in the long run. These companies turned to LBPO providers for assistance on their website requirements. IDC forecasts the logistics outsourcing market will grow from $67 billion in 1999 to over $114 billion in 2003. To be successful however, companies will need to become experts in the management of all aspects of logistics (i.e. asset based, and information based) and reengineering of client's business processes, thus taking it away from the traditional asset based logistics management (transportation, warehousing, etc.).[cciii] Jason Otteson, CEO of Sportan United Industries, stated, "The logistics industry is changing fast and success is only going to come to the most innovative and forward looking companies that can best take advantage of the Internet. The increasing popularity of e-commerce is providing many new and unique opportunities for logistics companies to provide the B2B support services necessary to drive e-commerce."[cciv]

TECHNOLOGY AND INNOVATION

Business process outsourcing is changing very rapidly because of technology and innovation. Advances in IT have contributed to the automation of BPO by adapting processes to be web-enabled thereby allowing customers to access support independently without human intervention.

A recent survey conducted by International Data Corporation (IDC) of 300 CEOs, Vice-Presidents, and Human Resource directors revealed that the HR business process industry is experiencing a revolution. CEOs and CFOs are increasing their involvement in the decision-making process when it comes to outsourcing HR functions because they want to align HR outsourcing with their strategic objectives.

The survey also showed the importance of integrating web-enabled/self-service capabilities to business process outsourcing users. HR processes continue to be automated. Mergers and acquisitions are contributing factors behind the demand for more web-enabled HR services.

John Barnsley, PricewaterhouseCoopers' Global Leader of Business Process Outsourcing, claims there are three driving factors behind the BPO phenomenon. They are:

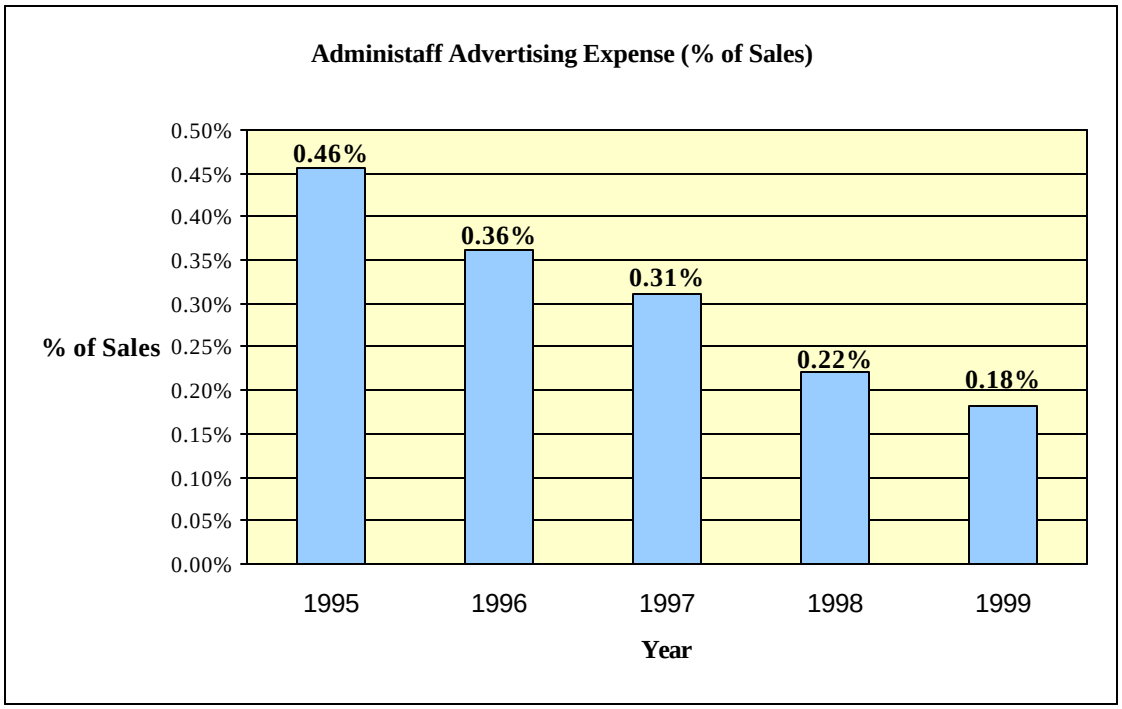
- Rapid changes in technology
- Global convergence
- Millennium

Barnsley also believes "the web is forcing everybody to understand that you've got to look at these things on a global level…Outsourcing is forcing people to think globally about how they do processes… Several global trends appear. Global integration eliminates the confusion in the market created by different silos. The market is instead asking for a single integrated offering to buy rather than have to piece together the various service offerings."[ccv]

BRANDING

Acquiring an exact advertising expense from annual reports of BPO leaders is not viable. Many of these firms have little or no advertising expense associated with their movements in the market. However, the CompuStat database revealed outsourcing companies spend very little on advertising. Even expenditures in the area of $1 million to $2 million compose a very small percentage of total revenue. **Figure 8** shows the percentage of revenue Administaff spent on advertising. Advertising has been less than a half of a percent for the last 5 years and is continuing to decline. Many of these companies perform B2B (business to business) functions in which reputation and credibility are key factors for getting business. Consistent superior performance leads to an established reputation, which is fueled by strategic networking.

Figure 8



BPO originated when corporations started contracting with vendors to perform non-essential functions such as cleaning and lunch room services. New companies are now dependent on the different forms and functions incorporated into and performed as outsourced business processes. BPO is most prevalent among the Energy sector, followed by financial services, and Entertainment/Media/Communications.

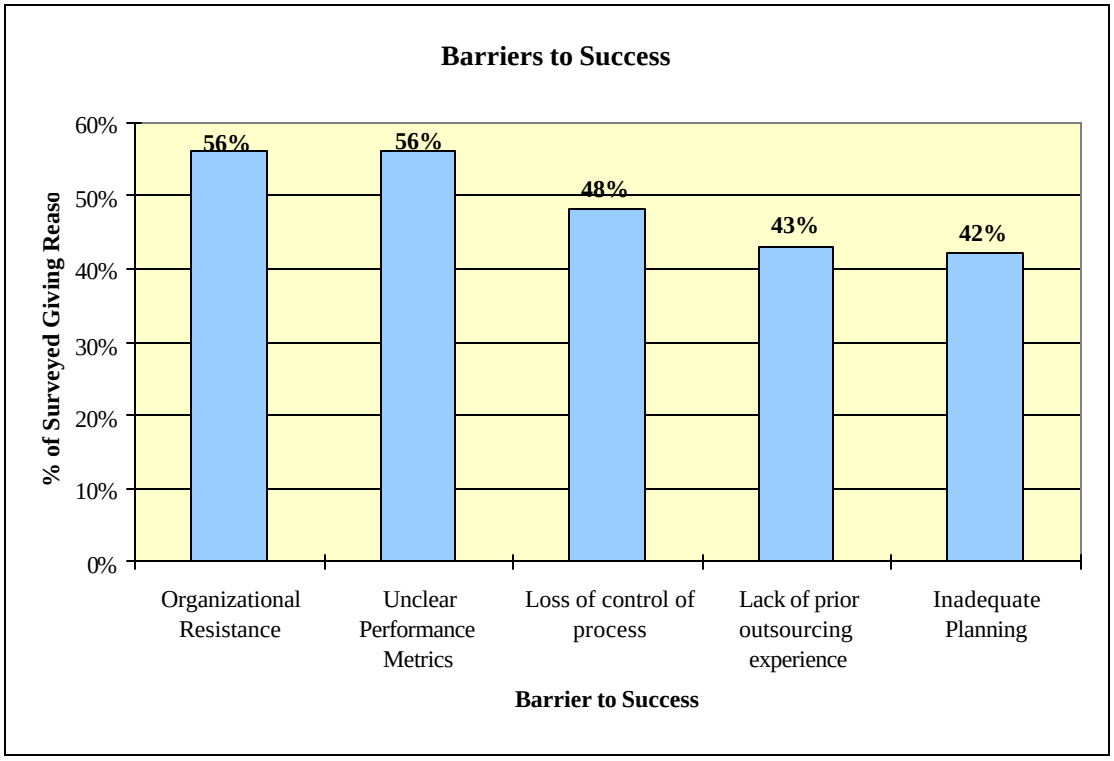
Despite the limited role of advertising and marketing, a sound reputation is vital in obtaining additional customers. Price is usually not the only selection criteria. A company with a reputation for delivering poor service and performance will find it difficult to obtain larger and better contracts or even sustain business in the future. The total economic cost associated with establishing a good reputation is not quantifiable. Many industry leaders we examined reported a very insignificant amount in advertising expenditures. This leads us to conclude that reputation is everything in the BPO industry.

BARRIERS TO SUCCESS

Yankelovich Partners researched the barriers to success in BPO. **Figure 9** displays the top five executive responses. Organizational resistance and unclear performance metrics were the largest barriers to success at 56%.

Figure 9

Source: Global Top Decision-Makers Study on Business Process Outsourcing



INDUSTRY LEADERS

In the BPO segment of IT outsourcing, Automatic Data Processing, ADP, is the clear leader. With over $6 billion in revenue, ADP provides a variety of services to all industries. ADP is ranked 286 on the Fortune 500 list and 2nd on the Most Admired List for their Industry Computer and Data Services. They provide services ranging from human resources to insurance automation.[ccvi]

INDUSTRY'S LARGEST COMPETITORS BY SALES

Automatic Data Processing -- #286 of the Fortune 1000[ccvii]

- The world's largest provider of payroll services and human resource information systems (HRIS), offering a comprehensive range of benefits, payroll and business tax deposit and reporting, time and attendance, 401(k) record keeping and unemployment compensation management services to 450,000 employers worldwide.
- Pays more than 29 million wage earners worldwide each payday and issues over 40 million W-2s to U.S. employees each year.
- Provides complete 401(k) services for more than 9500 plans covering 1.3 million participants, with over $22 billion in assets under administration.
- Prepares and submits employers' quarterly payroll tax returns to over 2,000 U.S. federal, state and local regulatory authorities.
- Moves over $450 billion electronically on behalf of our clients and their employees each year.
- Supports over 80,000 work-site employees across the nation as the second largest Professional Employer Organization (PEO) in the U.S.[ccviii]

Automatic Data Processing (ADP) is one of the world's largest payroll services provider with revenues growing steadily for the past 35 years.

Through its four units—ADP Brokerage Services Group, ADP Claims Services, ADP Dealer Services Group, ADP Employer Services—the Roseland, New Jersey–based company offers a broad spectrum of services, including benefits and payroll processing, payroll and business tax management, securities transaction processing and investor communication services, computerized auto repair estimating and auto parts availability, and fee and utilization audits of bodily injury claims. More than half the company's profits come from its payroll and tax services.[ccix]

ADP	*4 segments*				
thousands	**2000**	**1999**	**1998**	**1997**	**1996**
Sales	**6,287,512.0**	**5,540,141.0**	**4,925,956.0**	**4,193,447.0**	**3,613,014.0**
Growth Rate	13.5%	12.5%	17.5%	16.1%	
Operating Income	**5,043,411.0**	**4,470,897.0**	**4,057,561.0**		
Growth Rate	12.8%	10.2%			
Net Income	**840,800.0**	**714,172.0**	**608,262.0**	**515,244.0**	**454,747.0**
Growth Rate	17.7%	17.4%	18.1%	13.3%	
Employees - exact	**40,000**	**37,000**	**34,000**	**30,000**	**29,000**
Growth Rate	8.1%	8.8%	13.3%	3.4%	
Average Pay - exact	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Growth Rate					
Working Capital	**1,767,784.0**	**907,864.0**	**626,063.0**	**805,797.0**	**618,409.0**
Growth Rate	94.7%	45.0%	-22.3%	30.3%	
Profit Margin	**13.4%**	**12.9%**	**12.3%**	**12.3%**	**12.6%**

Source: 2000 Annual Report

Administaff -- #448 of the Fortune 1000[ccx]

Administaff's mission is to be the recognized leader in the development, sale, and delivery of quality Professional Employer Organization services to its strategically selected market of small- to medium-sized businesses.

They aim to accomplish this mission with their highly motivated team of innovative people dedicated to finding, attracting, and satisfying clients in a manner that will produce consistent and superior productivity among clients, employees and the Company.[ccxi]

Key Facts

- Named Best Full-Service Professional Employer Organization by ProEmp Journal.
- Designated one of the top 500 information technology innovators in 1999 by InformationWeek magazine.
- Named one of America's most admired companies in 1999 by Fortune magazine.

Key Financial Facts

1999 revenue: $2,260 million
1-yr. growth rate: 34 percent

Personnel Highlights

Number of employees: 800
1-yr. growth rate: Not available

Company Overview

With 20 offices in major cities across the United States, 38,000 employees (including PEO employees), and a client base of 2,300 companies, Administaff is one of the country's largest employee leasing firms.

The company, which went public in 1997, was founded in 1986 and grew rapidly with its plan to aggressively expand its network of offices. Among the largest shareholders in the company is American Express, which owns 17 percent of the company's stock and works in conjunction with Administaff to market the leasing company's services.

On January 12, 2000, Administaff announced an online business partnership with IBM designed to boost the company's e-commerce endeavors. Administaff has also formed strategic alliances with Forrester Research, Dell, American Express, and Luminant Worldwide.[ccxii]

Administaff					
thousands	**2000**	**1999**	**1998**	**1997**	**1996**
Sales	**3,708,531.0**	**2,260,743.0**	**1,683,063.0**	**1,213,620.0**	**899,596.0**
Growth Rate	64.0%	34.3%	38.7%	34.9%	
Operating Income	**22,234.0**	**(10,559.0)**	**11,201.0**	**(9,346.0)**	**6,477.0**
Growth Rate	NMF	-194.3%	NMF	-244.3%	
Net Income	**16,900.0**	**(9,358.0)**	**9,123.0**	**(7,439.0)**	**(2,603.0)**
Growth Rate	NMF	-202.6%	NMF	185.8%	
Emplyees under PEO	**62,140**	**42,479**	**34,819**	**26,907**	**22,234**
Growth Rate	46.3%	22.0%	29.4%	21.0%	
Average Pay - exact	**3,830.0**	**3,360.0**	**3,083.0**	**2,855.0**	**2,562.0**
Growth Rate	14.0%	9.0%	8.0%	11.4%	
Working Capital	**51,179.0**	**35,792.0**	**52,475.0**	**46,611.0**	**4,629.0**
Growth Rate	43.0%	-31.8%	12.6%	906.9%	
Profit Margin	**0.5%**	**-0.4%**	**0.5%**	**-0.6%**	**-0.3%**

Source: 2000 Annual Report

Staff Leasing -- #508 of the Fortune 1000[ccxiii]

FOUNDED: 1984
Largest professional employer organization in the United States.
Over 9,500 small to mid-sized companies from coast to coast.
INTERNAL EMPLOYEES: 1,100
WORK SITE EMPLOYEES: Approximately 125,000
BRANCH OFFICES: 39[ccxiv]

Key Facts
- Receives 30 percent of its revenues from the construction industry.
- The PEO market is projected to increase by 30 percent annually.

Key Financial Facts
1999 revenue: $2,701.9 million
1-yr. growth rate: 13.7 percent

Personnel Highlights
Number of employees: 128,274
1-yr. growth rate: 19 percent

Company Overview
Staff Leasing is the largest professional employer organization (PEO) in the United States. The company acts as a co-employer for its customers, managing the responsibilities of payroll, worker's compensation, benefits, unemployment insurance, and other employment-related issues. The clients retain day-to-day supervision of the employees. PEOs allow a business to outsource all human resources functions, and thereby significantly cut their operational costs.

Staff Leasing focuses primarily on small- to medium-size businesses (from 2 to 100 employees), and co-employs about 127,000 employees with more than 10,000 clients, largely in the construction and service industries. The main employee benefit from a PEO is its wide network opens the door to retirement and health care benefits.

Staff Leasing operates offices in Arizona, Florida, Georgia, Minnesota, North Carolina, Tennessee, and Texas. The company acquired PeopleSense.com in October 2000 as part of an effort to expand its online services.[ccxv]

Staff Leasing					
thousands	**2000**	**1999**	**1998**	**1997**	**1996**
Sales	**3,104,240.0**	**2,701,886.0**	**2,375,522.0**	**1,851,248.0**	**1,432,131.0**
Growth Rate	14.9%	13.7%	28.3%	29.3%	
Operating Income	**(3,784.0)**	**32,975.0**	**34,342.0**	**26446**	**(441.00)**
Growth Rate	-111.5%	-4.0%	29.9%	NMF	
Net Income	**604.0**	**21,650.0**	**23,395.0**	**30,783.00**	**(3,865.00)**
Growth Rate	-97.2%	-7.5%	-24.0%	NMF	
Employees - exact	**1,100**	**1,358.00**	**1,274.00**	**1,004.00**	**905.00**
Growth Rate	-19.0%	6.6%	26.9%	10.9%	
Average Pay - exact	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Growth Rate					
Working Capital	**58,081.0**	**37,518.0**	**25,142.00**	**24,376.0**	
Growth Rate	54.8%	49.2%	3.1%		
Profit Margin	**0.019%**	**0.801%**	**0.985%**	**1.663%**	**-0.270%**

Source: 2000 Annual Report

Paychex -- #890 of the Fortune 1000[ccxvi]

In 1970, tax laws were becoming more complicated. This increased the need for outside help among small business owners. Yet business services were too expensive for smaller companies with only one to 200 employees. To resolve this problem, B. Thomas Golisano founded Paychex, Inc., in Rochester, New York in 1971 to service the small business market, which accounts for 98% of all American businesses. What started as a single operation expanded through franchise agreements and joint ventures until Paychex consolidated into one private company in 1979. Today, the company has over 100 locations and serves hundreds of thousands of clients nationwide. In fiscal 2000, Paychex generated more than $728.1 million in service revenues.

Paychex went public in 1983, with the company's stock trading on the NASDAQ Market. Since then, double-digit growth has become the norm — the Board of Directors declared 3-for-2 stock splits in 1986, 1987, 1992, 1993, 1995, 1996, 1997, 1998, 1999 and again in May 2000.

In January 2001, Paychex made the A-List in the Business Services section of the *Forbes Global* rankings for the second year in a row. In 2000, Paychex ranked #212 in market value out of 500 companies on *"The Forbes 500s,"* ranking #470 on the 895-company "super rank" listing that combined sales, profits, assets, and value. In July, the company had a U.S. ranking of #206 (up 106 positions from 1999) and global ranking of #405 (up from #626 in 1999) on the *"Business Week Global 1000."*[ccxvii]

Paychex					
thousands	**2000**	**1999**	**1998**	**1997**	**1996**
Sales	**728,119.0**	**597,296.0**	**493,704.0**	**399,733.0**	**333,308.0**
Growth Rate	21.9%	21.0%	23.5%	19.9%	
Operating Income	**258,893.0**	**187,562.0**	**134,700.0**	**96,625.0**	**69,922.0**
Growth Rate	38.0%	39.2%	39.4%	38.2%	
Net Income	**190,007.0**	**139,099.0**	**102,219.0**	**75,150.0**	**55,035.0**
Growth Rate	36.6%	36.1%	36.0%	36.5%	
Employees - exact	**6,200**	**5850**	**5500**	**5100**	**4440**
Growth Rate	6.0%	6.4%	7.8%	14.9%	
Average Pay - exact	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Growth Rate					
Working Capital	**475,630.0**	**360,784.0**	**263,118.0**	**194,614.0**	**138,639.0**
Growth Rate	31.8%	37.1%	35.2%	40.4%	
Profit Margin	**26.1%**	**23.3%**	**20.7%**	**18.8%**	**16.5%**

Source: 2000 Annual Report

Ceridian – Ranked #924 in the Fortune 1000

Ceridian is a leading information services company serving the human resources and transportation markets. Ceridian's businesses help customers improve their productivity and competitive position.

The company's human resources businesses include Ceridian Employer/Employee Services, human resource management solutions, industry-leading payroll and tax filing services, comprehensive benefits administration and retirement plan services, and fully integrated workplace effectiveness solutions in the U.S. and Canada; Centrefile, a provider of payroll and human resources management solutions in the United Kingdom; and Usertech, a provider of computer user training and performance support programs. Ceridian's businesses also include Comdata, which provides transaction processing and information services to the transportation and other industries.

Ceridian's excellent prospects stem in part from its ability to capitalize on the growth trends in the technology arena. Outsourcing, electronic funds transfer, e-commerce and other information trends have ignited the growth of information services in North America and, increasingly, in Europe, Asia and other markets.[ccxviii]

Ceridian					
millions	**2000**	**1999**	**1998**	**1997**	**1996**
Sales	**1,175.7**	**1,127.0**	**967.6**	**909.7**	**789.6**
Growth Rate	4.3%	16.5%	6.4%	15.2%	
Operating Income	**162.9**	**185.6**	**162.1**		
Growth Rate	-12.2%	14.5%			
Net Income	**100.2**	**145.3**	**187.3**	**480.4**	**179.2**
Growth Rate	-31.0%	-22.4%	-61.0%	168.1%	
Employees - exact	**9,700.0**	**9,500.0**	**8,200.0**	**6,600.0**	**6,900.0**
Growth Rate	2.1%	15.9%	24.2%	-4.3%	
Average Pay - exact	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
Growth Rate					
Working Capital	**241.5**	**174.7**	**186.9**	**218.1**	**26.6**
Growth Rate	38.2%	-6.5%	-14.3%	719.9%	
Profit Margin	**8.5%**	**12.9%**	**19.4%**	**52.8%**	**22.7%**

Source: 2000 Annual Report

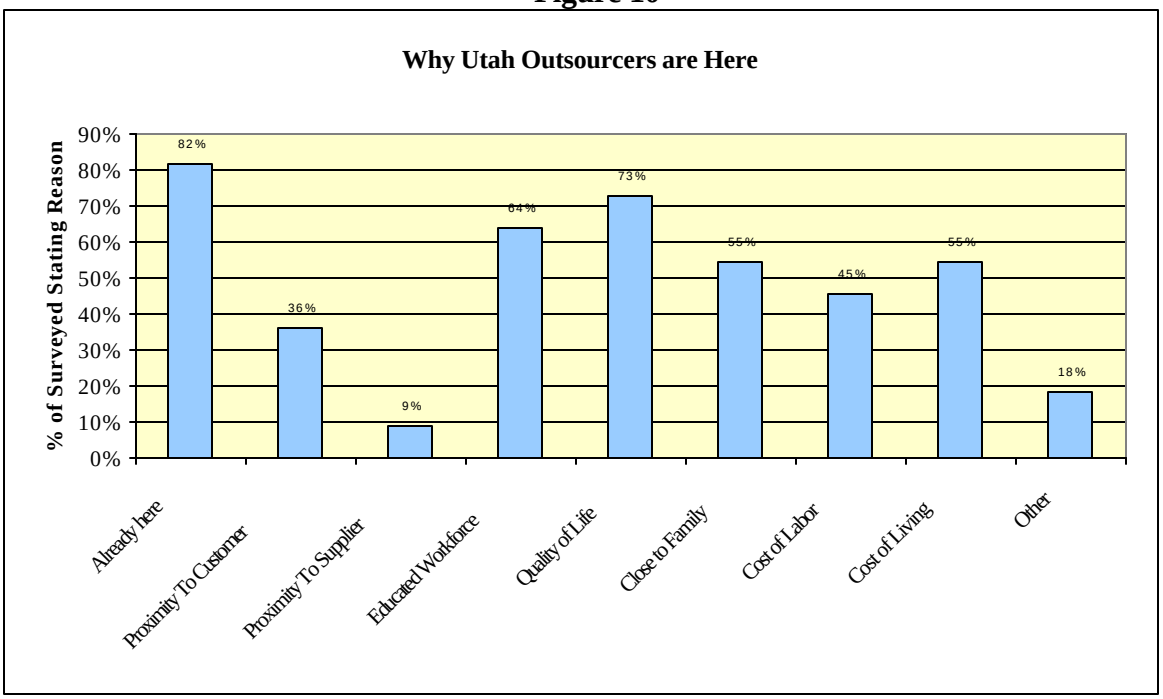
UTAH IT OUTSOURCING

We interviewed twenty outsourcing firms located in Utah. Interviews were designed to understand and obtain input regarding services provided by local companies, their long-term plans, Utah's strengths and weaknesses in IT outsourcing, and criteria/reasons for locating in Utah.

WHY THEY'RE HERE –

Of the twenty companies interviewed, over 80% stated their reason for being in Utah is they started doing business in Utah. Aside from already being established in Utah, companies cited (1) quality of life, (2) educated workforce, (3) close to family, and (4) cost of living as their reasons for locating in Utah. **Figure 10** displays the response.

Figure 10



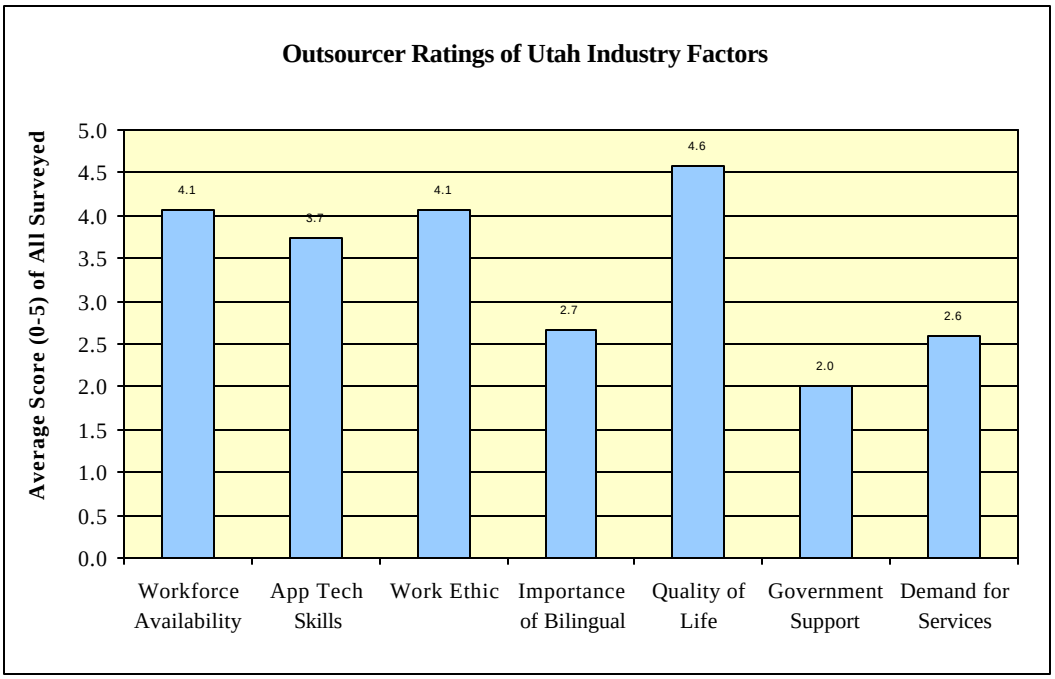
Companies also quantified their perceptions of Utah on six factors. The factors evaluated were:

- Workforce availability
- Applicant technical skills
- Work ethic of employees
- Importance of bilingual workforce
- Quality of life

- Government support
- Demand for services

These factors were rated on a scale from 1 to 5. A score of 5 indicated that the business felt the particular aspect of their business or aspect of life was exceptional in Utah. **Figure 11** is a chart displaying the average score of all the respondents.

Figure 11



Services provided by the outsourcers contacted include:

- Help Desk/Onsite Support
- Application Development
- Network Setup/Maintenance
- Technical worker staffing/Staff augmentation
- Database development
- Technical support

Although the IT firms we surveyed in Utah offered a wide range of services, services offered within each company were closely related. These companies stated that their expertise and niche focus is what attracts customers. Surveys also revealed that the majority of companies involved in IT outsourcing provide services related to setting up a computer system, maintaining that system, and developing applications for use within a specific business.

Many of the companies we surveyed indicated they have only been in business for six to ten years. They are noticing the value of niche markets. Companies who focus on one section of the technology sector see a viable business growing and are gaining national customers. Most

indicated they planned to expand both in and outside of Utah. Most perceive themselves as adding value to other businesses in both terms of cost savings and strategic alliances. There have been numerous startups in this young and growing industry. Individuals working in the industry that ventured out on their own formed many of these start-ups. However, these newer players are struggling to survive due to the intense competition both regionally and nationally. National and global consolidation has been leading to the survival of only the bigger, well-established players.

Utah outsourcing companies cite that they experience intense competition in this industry. Utah outsourcing companies not only compete amongst themselves for contracts but they are also in competition with industry leaders because they often are unable to compete for larger contracts from major customers. For the most part the majority of the competition originates from regional companies. The problem of Utah outsourcing companies being able to compete with large companies has the possibility of becoming exacerbated if the trend of potential clients seeking for companies that offer bundled services continues.

Offshore outsourcing is also on the rise affecting outsourcing companies in Utah. Demand is below average and legislation is restricting outbound outsourcing. More and more customers are moving their lower tier outsourcing to countries such as India.

Tina Okolowitz of Marketing Ally, a leading outsourcing provider in Utah County, pointed out that in the lower tier outsourcing, the quality of life in Utah does affect the level of dedication of employees. Employees will occasionally not come to work because of other commitments because most can afford a day off here and there.[ccxix]

David Russell of International Business Machines, IBM, in Salt Lake City said Utah is not perceived as a leading edge state. He stated that most Utah consumers are ahead of many parts of the nation, but are not early adopters in a product's life cycle. According to IBM-SLC, Utah's weakness is its chronic shortage of deep skill level in such things as Database management and programming.

Mr. Russell also cited the length of time to get established as the biggest problem facing outsourcers. Getting established is a tedious process. However, the market is continually growing as a support industry for high tech companies. The industry is very competitive and through acquisitions, the big guys will continue to grow. Outsourcing is also gaining greater acceptance, especially with its strategic advantages, than it has in the past. This is one reason the industry is progressing so fast. Mr. Russell indicated that when IBM looks for a location for an outsourcing service they consider room to operate a center and an employee skill set that meets the demands of their customers.[ccxx]

The job-shifting dilemma is one challenge that must be tackled when deciding to bring national players to Utah to promote IT Outsourcing. If large players come to Utah they will recruit employees from local outsourcing firms resulting in wage competition reducing the competitive advantage of Utah as a lower wage state.

Another dilemma is the GDP issue. Profits are reported for the corporation as a whole in the city where the headquarters is located. Although a company may have an office or a branch in Utah and generate jobs, if the headquarters is not here, it will not boost the overall economy's GDP rating.

SMART SITES

CEDAR CITY SMART SITE

Joe Schoney is the director and owner of the Cedar City SMART site.

The following discussion is the result of an interview conducted with Joe Schoney, director and owner of the Cedar City SMART site, on May 4, 2001. All facts are based upon information Joe Schoney disclosed in his interview and is not based upon data collected or verified by the interviewers.

The Cedar City Smart Site is a privately owned venture, Advanced Marketing Concepts (AMC), working in partnership with Southern Utah University (SUU). AMC has just finishing remodeling a 4,500 square foot building near the airport (2331 West Park Avenue). This building is currently operating on a wireless connection and has 96 workstations. The current operations conducted at the site include market analysis and a recently acquire contract from Novell to provide technical support.

The SMART site model incorporates technical support centers into rural (less than 50,000 people) locations and adds value to corporations by taking an occupation that is not strategically important and outsourcing it to these locations. Rural locations that hold an advantage over urban locations are in professions that offer close to average urban wages, have high turnover, do not require deep technical skills, and are not strategically aligned with the company. In these types of occupations rural areas can add more value by allowing a company to reduce turnover, and offering lower wages for the same work but higher than average wages for the average rural job.

According to Joe Schoney there are three critical elements in order for their company to be successful in rural Utah. They are:

1. Private Sector
2. Government
3. University

The role of the private sector is to allow the business to operate efficiently and competitively in the outsourcing industry. By having a private sector the politics are removed from the daily operations that would normally be imposed if the company were run by the government. The role of the Government is to provide the introductions to potential customers and access to funding. The role of the University is to provide the resources for training of employees, and a workforce base with the specialized skills or interests.

The recently acquired contract with Novell is a good indication of the future. Novell currently outsources some of their customer support to the SMART site. AMC hired four full-time employees to handle the required customer support for Novell. These employees were

specifically selected based upon their credentials (they were required to have certifications and previous experience), and their desire to live in Cedar City for the long term.

The employee pays for training costs in the areas of certification and schooling with the possibility of some of the certification costs being paid for by the contract company with respect to contract company's particular software systems. The contract company also incurs some of the other training costs of hiring a new employee. For example, in Cedar City SMART site's contract with Novell, Novell provides the first two weeks of initial training at one of their customer support centers and switch offs thereafter. Switch offs are a method of training in which a SMART site employee goes to a Novell customer support center for a week during the same time a Novell employee goes down to the SMART site. This allows Novell to incorporate their culture into the employees, ensure proper handling of customers, and provide proper training to SMART site employees.

What makes this a viable part of a business model is the desire of the workforce to stay located in rural Utah. Joe Schoney has found, that when compared to urban Utahans, rural Utahans are less likely to quit, resulting in a lower turnover rate. Using a typical estimate that turnover costs result in expenses to the company in the range of 40% of an employee's salary. Smart Sites could save the outsourcing vendor they are partnered with up to $12,000 per employee (using the stated $30,000 salary).

The Cedar City SMART site model plans to increases productivity by 30%. Novell outsources to the Smart site, occupations where employees are becoming burnt out after 5 hours of work. As a result the remaining 3 hours of work were not very productive. The SMART site plans to increase the productivity by employing some workers for spurts of 4 hours. This allows them to receive the maximum benefit from the employee before burnout. This also adds value due to the fact that the law does not require companies to offer benefits to part-time workers, nor do they have to provide a break for lunch. Therefore by hiring part-time employees the SMART site lowers their average cost per employee. Novell could not do this themselves because of the problems of the cost of living in Provo demanding that employees earn a higher weekly salary, higher turnover, and higher training costs.

Joe Schoney predicts that his turnover costs will be negligible due to the fact that he does not incur substantial training costs. We feel this assumption is unrealistic. The fact that employees do add value and go through a learning curve where they develop skills and routines that allow them to become more productive in their jobs demonstrates that there are training costs that may not be easily identified or recognized but do result in increased productivity with experience. These expenses would be directly attributable to the SMART site and not the contract company.

There are a number of challenges this SMART site model faces associated with its future training costs of part-time employees. It is anticipated that part-time employees will largely come from students at SUU. The SMART site has no guarantee as it hires these students as employees that they will further their education in computer science fields. Also students are limited in their income and in the time they can take off from school for training purposes. With high probability student employees will not be able to meet the training requirements of traveling to the contract company to receive company specific training. Students will either have to put

off training until school breaks or receive the training during normal working hours at the SMART site facility. There is also no guarantee that the employee will have funds available to pay for certifications and will possibly want to be reimbursed for costs associated with certifications and schooling when the certifications that are required do not directly relate to the contract company (i.e. Microsoft certifications vs. Novell certifications) systems.

While the turnover rate is lower, the workforce is not as skilled as that of urban locations. A large population base is needed to guarantee the availability of skilled workers and to replace those that leave. Cedar City is able to provide the workforce base because of the close proximity and partnership with SUU. SUU provides the skilled workforce or the workforce with the interest in computer science related fields, and a means for the workforce to receive proper training.[ccxxi]

Rural Smart Sites
Excerpts from Summary of Business Survey
Jonnie Wilkinson, May 2001

…Smart Sites are outsourcing facilities for, mainly, computer and especially software technology companies. I surveyed seven technology firms ranging in size from a few dozen to several thousand employees… I briefly discussed the smart site outsourcing concept with more than 20 other firms. All of the firms surveyed, and most of the others with whom I discussed the smart site concept are primarily involved in software development.

Without exception, each company indicated experience is the single most important factor in its workforce, whether outsourced or not. Depending upon the nature of the position, all companies desire from two to seven years of experience. The lower requirement is for technical support and other less technical positions. High paying and highly technical positions, such as developers, engineers, programmers, program testing (quality assurance), etc, require from five to seven years experience. This is of particular significance in choosing an approach for developing the smart site concept. Except for one firm, all indicated college degrees are of secondary importance, although they give individual employment candidates an edge and are important for higher paying jobs. Degrees in computer science and technical writing are particularly desirable…

Most firms are willing to consider outsourcing almost any work, including administrative to some degree. The most likely outsourcing activities are technical support and program testing (quality assurance). Six firms indicated they would be interested in looking at opportunities to outsource, based on cost savings and quality. All seven are willing to serve on a task force of on or two meetings to help formulate an approach to creating and establishing smart sites.

In view of this, rather than broadly seeking outsourcing opportunities for smart sites, a tiered approach to training and outsource contracts will more likely succeed, since most smart site employees will, initially, have little or no experience. Sento, an American Fork inbound call center, providing technical support for technology companies, may be a good model for first tier training and outsource contracts…(See Sento Caselet pg. 86)

A partnership between the State and private sector firms to establish operations in outlying rural areas, using such a model, could lead to outsourcing opportunities in development, engineering, testing and quality assurance, etc., many of which pay much more than technical support. When smart site employees have obtained sufficient experience and certifications, it may be possible to court technology companies for outsource contracts involving higher paying work…

First Tier: Technical support etc.
Second Tier: Programming, Testing, And Other Quality Assurance
Third Tier: Design, Engineering, and Development.
…It is important to note that these "tiers" are not rigid. Many employees work in more than one tier, and employers have widely varied ways of categorizing positions and work. These tiers are

merely a suggested way we may consider developing the smart site concept. Companies in the technology sector have not adopted them in this form.

A final point, which should be carefully considered, is whether the smart site concept is solely intended to vitalize rural areas through offering opportunities, which will allow people to stay, or is it intended simply to train individuals, thus enhancing purely personal opportunities. Do the expected outcomes include both possibilities? It is likely that at least some workers trained at smart sites will relocate to obtain higher pay in urban areas. Expectations concerning the outcome of developing smart sites should be tempered with this understanding.[ccxxii]

Training Model Caselet
Sento

Sento is an outsourcing company located in American Fork, Utah. They also have locations in Wyoming, South Africa, India, The United Kingdom, and a joint venture project in Australia. They specialize in customer care and technical support. They have a unique model called Sento University. Employees "enroll" in the University for two years during which time they obtain technical certifications. Providing certifications in JAVA, HTML, Microsoft, Oracle, Novell, CNA, CNE, C++, Unicenter, Unix, Linux etc. is an added incentive for employees since these certifications are recognized industry wide. Sento also serves as a placement center when employees are ready to leave. These "additional" services contribute to the strong rapport between the employee and Sento. Above average employee loyalty and dedication has resulted in very low turnover. Sento's turnover ranges from 25 –50% per year compared to the industry average of 100 – 150% per year.

Sento does not advertise job openings. Sento's successful model and reputation, allows them to rely on employee referrals.

Sento faces stiff competition from prevalent in-house call centers also located in Utah. Sento offers exactly what companies such as Ebay, AOL, Discover, and etc need. However, these companies keep this function in-house due to the ease and advantages of locating call centers in Utah.

The first mover advantage is very important in establishing relationships. As stated throughout this analysis, relationships are the foundation of success in the outsourcing arena. Sento acts as a strategic partner with all of their customers. They provide analysis for their customers and show them how the web can power much of their business and how companies can drive customers to the web with solutions and help. With such a relationship and model, Sento has achieved higher satisfaction ratings than usual for the customer care industry.

Source: Interview, Nancy Baumgartner, VP of Sales, 5/11/01

Company Profile

Sento Corporation is an established Utah corporation with a history of innovation and success. Its origins can be traced to the founding of Spire Technologies in 1986. At that time, Spire Technologies sold and supported highly technical software designed for computer systems from Digital Equipment Corporation.

These large, complex systems required special skills to operate and maintain, and Spire Technologies was among the first to combine leading software solutions with technically skilled support services for this industry. During the next ten years, the Company's reputation as a leading provider of expert technical support and innovative consulting services grew to include the UNIX and Windows NT marketplaces.
Due to this success, the Company made the decision to go public in 1996 and was renamed Sento

Corporations (traded on the NASDAQ under the symbol SNTO). Since that time, the scope of Sento's Technical Support Solutions division and Technical Consulting Solutions division has been significantly expanded, and a third business unit has been added: Technical Training Solutions. The synergy created among these divisions enhances Sento's commitment to providing the market with the highest levels of technical expertise and innovative service solutions.

It's the company you keep...

Sento services manufacturers like Corel Corporation, Microsoft, Network Associates, Digital Equipment Corporation, Compaq, and others. We also provide Helpdesk solutions to over 5,000 organizations worldwide. Our innovative technologies and proven track record makes us the logical choice for businesses and manufacturers looking for solutions to today's challenges.

*We are committed to exceeding our customers' expectations
*We require a results-orientated environment
*We succeed by investing in the most innovative tools and technology in the industry, thereby enabling us to provide the fastest, most efficient, and most flexible services available.
*We provide opportunities for professional and personal growth for our employees.
*We conduct our business as professionals, using the highest ethical standards and a genuine concern for others.
*Quality is the number one ingredient in our products and services.
*We recognize, encourage, and embrace change.[ccxxiii]

Source: http://www.sento.com

RECOMMENDATIONS

The xSP market is built on the foundation that the technology industry is shifting from a product to service based landscape. This movement is in its beginning stages. New participants are consistently entering the xSP marketplace contributing to the constant change of the industry landscape. Consequently, it is premature to assume that analysts and executives can accurately predict what this industry will look like 5 months down the road or who the successful participants will be. Therefore, our recommendations are based upon the general current business models and criteria that we foresee as having the most potential for future success.

OUTSOURCING

Recommendation #1: Utah should target outsourcing companies that perform IT-related services. Attracting technology related companies will create a greater demand for computer science and engineering graduates and also fuel the growth of technology in Utah.

IT OUTSOURCING

Recommendation #2: IT Outsourcing can promote the clustering of high tech companies. The ability to provide end-to-end IT solutions requires expertise in a variety of different areas. This has resulted in numerous types of vendors participating in the xSP market. An interview with Michael Corbett, an outsourcing expert, revealed that there is a high probability for xSP participants to locate near one another. In creating a high technologically advanced economy, IT outsourcing and the xSP market in particular, have the potential to facilitate the clustering of high tech companies; therefore, Utah should pursue developing these industries.

Recommendation #3: Utah should encourage further expansion from large, well-established outsourcing vendors. Since trust and reputation are vital when selecting an IT outsourcing vendor, many companies will only outsource to well-established firms. Therefore, large outsourcing companies, such as CSC, EDS, and IBM Global Services, will continue to retain the majority of business. Given that these companies are already headquartered in other large metropolitan areas, it is highly unlikely that they will relocate. Therefore, further expansion should be encouraged among these large players.

XSPS

Recommendation #4: Attract xSPs who have not established their headquarters. Since the service provider sector is young and evolving, many SPs have not yet fully established their headquarters. Promising ASPs, MSPs, and HSPs who lack concrete ties to a particular location should be targeted.

Recommendation #5: Target xSP companies with the following characteristics. Utah should attract leading companies that possess the following characteristics:

- A leveragable technology platform and business processes.
- Well-developed indirect sales channels.
- Compelling, well-defined product offerings.
- Clear new service development plans.
- Low capital consumption business models.[ccxxiv]

ASPs

Recommendation #6: Allow the ASP industry time to evolve. Due to the rapid consolidation within the industry analysts feel it is nearly impossible to predict who will survive and even more difficult to foretell future leaders. We recommend cautious progression into the ASP market until the shakeout and consolidation subsides. Within the next 6-18 months surviving ASPs should begin to break even. A better idea of potential profitability can then be determined.

Recommendation #7: Utah should attract ASPs with capital, as they are more likely to survive the industry shakeout. Many start up ASP companies have failed due to lack of funding. Utah should target larger enterprises with a substantial revenue base, a proven track record, and those who provide ASP services in addition to their regular product offerings.

Recommendation #8: Utah should focus on attracting VSPs. With the increasing demand for customized, industry specific services, Utah should pursue vertical service providers (VSPs)—ASPs that tailor their applications and services to specific industries. VSPs successfully soliciting venture capital funds, especially in an economic slump, are likely to succeed.[ccxxv]

Recommendation #9: Utah should target large telecoms with deep pockets. With the telecoms playing an increasing role in the movement of IT products to services, moving into the ASP and MSP sectors, they should be targeted. Qwest is an attractive telecom due to its well-established Utah presence, abundant infrastructure, and current reorganization and expansion. Further expansion or relocation of its CyberSolutions headquarters from Denver into Salt Lake should be pursued.

Recommendation #10: Utah should capitalize on its software community. Given that many ASPs have their roots in the software development industry, Utah should encourage the software developers currently located here to be active participants in the development of this market. There is great potential for these companies' applications to be provided over the Internet through a system of alliances and partnerships that could be developed with system integrators, ISPs, and infrastructure providers.

Recommendation #11: Government must instigate ASP growth within Utah. Government can help promote ASPs based in Utah to other companies. The existing data center infrastructure within the state needs to be united with ASP technology. Endorsing ASP offerings and services inside and outside of Utah will increase ASP business and brand Utah as an ASP center.

MSPs

Recommendation #12: Utah should target two types of MSPs. 1) Utah should target MSPs that own their own data center facilities who do not depend upon the availability of data storage space in competitor's facilities, especially since many large data centers are refusing to lease space to MSPs. 2) Large HSPs/data centers that have acquired MSPs should also be targeted with the intention of attracting the MSP division to Utah.

HSPs and Data Centers

Recommendation # 13: Data Center potential is limited. Our research has indicated that data centers do not offer a large number of jobs and their ability to attract companies to locate near them is minuscule. Therefore, if any effort is directed toward the development of a data center ecosystem, it should be with the intention of developing the hosting service market. A data center on its own has limited potential.

Recommendation #14: Establish Salt Lake City as a Tier 1 peering point. Utah should establish a Tier 1 peering point similar to MAE-East to promote the growth of high tech companies looking to expand in Tier 1 "NFL" cities. The government should facilitate the development of this peering point by 1) serving as an unbiased third party that would house the common infrastructure where Network providers would locate and 2) holding a summit meeting with major telecom carriers such as Qwest, AT&T, WorldCom, and Sprint.

Recommendation #15: Promote Utah's excess power. If Utah decides to pursue the development of a data center ecosystem, they should target companies located in areas with high-energy costs. Utah is a very viable place to locate a data center because they are a net exporter of power. See report on alternative energy for more details.

Recommendation #16: Provide more hands on experience. Increase hands on experience for potential employees in this industry by promoting internships in Data Centers and custom-fit training programs. University programs or applied technology centers should establish certification programs and promote internships that foster the development of a wide range of expertise and technical skills.

Business Process

Recommendation #17: Utah should pursue ASPs that provide business process applications. Successful business processing is evolving to incorporate the application of technology. Therefore, Utah should target ASPs who provide business process applications. In servicing this market, ASPs have access to one of the largest and most stable segments of outsourcing.

Recommendation #18: Utah should pursue BPO in rural smart sites. Since BPO leaders are well established it is unlikely that they will relocate their headquarters to Utah. Leaders such as Paychex and ADP already have offices in Utah. Therefore, further development of BPO industry in Utah should be pursued through the expansion of these offices into rural smart sites. Many business processes, such as payroll and benefits administration, could be done successfully from a rural smart site. Smart sites are an attractive location due to their stable, under-employed work force, low turnover rate, and strong work and education ethic. ACS, regionally headquartered in Sandy, has shown a vested interest in Utah and the Smart Site concept making them an ideal partner to target.

TARGET COMPANY LIST

Contact information for companies that should be targeted with the goal of either relocating or expanding into Utah are listed on pages 12 and 13. Companies were selected based upon business model analysis, industry rankings of market leaders, and analyst recommendations.

The list includes several promising telecoms, ASPs, VSPs, MSPs, and specialist ASPs providing business process applications. It also entails fourteen private VSP companies, who have received venture capital funding from Crosspoint Investment Firm within the last two years. Crosspoint is a venture capital firm that invests in early stage companies in two strategic areas—VSPs and E-Business Services and Broadband Infrastructure. They are interested in highly differentiated products and services that have the ability to achieve market leadership and remain differentiated over time.

Target Telecom Company

Qwest owns and operates data centers, cyber centers and offers ASP services through its CyberSolutions division. A first mover among telecoms to provide ASP and MSP services, a strong Utah presence, and abundant infrastructure, are among Qwest's valuable resources that can greatly enhance the development of the xSP ecosystem in Utah.

Qwest

Type
Public Telecom

Ticker Symbol
Q

CEO
Joseph P. Nacchio
#303-992-1414

Headquarters
1801 California St.
Denver, CO 80202
Phone:(303) 992-1400
Phone:(800) 899-7780
Fax: (303) 992-1724
www.qwest.com

Qwest operates more than 104,000 miles of a broadband fiber-optic network, providing data, multimedia, Internet, and voice services. Qwest builds fiber-optic systems and sells fiber to other businesses.

The acquisition of US West in June 2000, offered Qwest access to a 40,000-mile U.S. network with 25 million local-phone customers, and more than tripled its annual revenue.

In a joint venture with Dutch phone company, called KPNQwest, it is building 8,100 miles of IP-based fiber-optic network across the Atlantic. Customers include Citibank, Fleet Securities, General Motors, Wal-Mart, and AOL Time Warner. Competitors are Level 3 Communications, AT&T, Verizon, and WorldCom.

Qwest is vying for position in three growth areas: wireless, high-speed data transmission, and long distance. Qwest has not voraciously pursued the wireless market; Qwest had only 800,000 subscribers, compared with Verizon Communications' 24 million, at the end of 2000. Qwest's overall capital spending is significantly less than its direct competitors.[ccxxvi]

Qwest does have a competitive advantage over the Baby Bells in the long-distance market. To win approval for its acquisition of U.S. West, Qwest had to exit the long distance market in the 14 western states it serves. As Qwest gradually applies for and receives approval from the Federal Communications Commission to re-offer long-distance service, the company can fall back on its long-distance history. Rivals Verizon and SBC Communications cannot bring such experience to the table.[ccxxvii]

Qwest	2000	1999	1998
Revenue	16,610.0	3,927.6	2,242.7
Revenue Growth	323%	75%	
Net Income	-81.0	458.5	-844.0
Profit Margin	-0.5%	12%	-38%
Assets	73,501.0	11,058.1	8,067.6
Liabilities	32,197.0	4,056.8	3,829.4
Market Cap	68,359.5	31,545.0	17,350.0

http://www.hoovers.com/annuals/1/0,2168,53501,00.html

Qwest CyberSolutions was ranked as the no. 2 ASP with 7% market share and $100 million in revenue. Qwest CyberSolutions' Complete Employee program serves one of the largest and segments of outsourcing—business processes.

Qwest Cyber.Solutions (QCS) delivers infrastructure, software, application development/implementation, maintenance and enhancements, in an end-to-end package.

In April QCS announced the unveiling of its Complete Employee, a fully-integrated workforce automation solution that combines Human Resources, payroll, benefits administration and employee self service applications such as expense reporting. The Complete Employee brings together software components from ADP's payroll services, Captura's expense reimbursement offering and PeopleSoft's HR and base benefits functionality in QCS' comprehensive hosted and managed HR system.

By combining the leading-edge technologies from various vendors, Complete Employee provides the simplicity of employing a single vendor—saving time, resources and expenditures by leveraging QCS' managed service expertise.

Qwest Cyber.Solutions research and development funds are being invested in pre-integrating and pre-configuring applications.[ccxxviii]

Qwest Cyber.Solutions

Type
Private Company

Category
ASP

CEO
John Charters
#303-291-6409
SVP Mark. & Bus. Dev.
Denzil Samuels

Headquarters
1899 Wyncoop
Denver, co 80202
Phone: 303-291-6400
www.qcs-us.com

Number of Employees
620

ASP TARGET COMPANIES

According to Gartner Dataquest, Corio is ranked as the no.5 ASP with 2.3% market share. ASPScope lists Corio as the no. 1 ASP, ASPnews.com includes them on their list of the top 20 ASPs.

Corio is an ASP which implements, integrates, hosts, manages and supports a suite of scalable, enterprise software applications from leading vendors. Their offerings include infrastructure, enterprise applications, e-business solutions and professional services.

Corio's application suite features:

- BroadVision
- Commerce One
- E-piphany
- Microsoft
- Moai
- PeopleSoft
- SAP
- Siebel Systems

Corio developed the platforms on which stand-alone applications can be optimized for hosting. Corio products such as the Corio™ Intelligent Enterprise have been tailored to meet the needs of customers in vertical industries; Corio's FastLane methodology allows customers to implement end-to-end solutions in weeks rather than months; Corio's Professional Services organization offers high value e-commerce and value chain consulting for a fixed fee."

Type
Public Company

Ticker Symbol
CRIO

Category
Enterprise ASP

CEO, President, Director
George Kadifa

Headquarters
959 Skyway Road, Suite 100
San Carlos, CA 94070
Phone: (650) 232-3000
Fax: (650) 232-3200
www.corio.com

Number of employees
498

Corio	2000	1999	1998
Revenue	43.6	5.8	1.3
Revenue Growth	652%	346%	
Net Income	-99.8	-45	-3
Profit Margin	-229%	-776%	-231%
Assets	181.3	61.6	10
Liabilities	43.4	25.1	6.9
Market Cap	69.0	n/a	n/a

www.hoovers.com/annuals/7/0,2168,60637,00.html

PeopleSoft develops the software that it provides through its ASP services. PeopleSoft is rank as the no.4 ASP by Gartner Group and the no.6 ASP by ASPScope.

PeopleSoft, Inc. designs, develops, markets and supports a family of enterprise client/server application software products—relating to the management of people—for large and medium sized organizations. PeopleSoft's applications are designed to allow the customer flexibility in managing their operations.

With their beginnings in human resource management, they are considered the leader in HR software applications. PeopleSoft also manages a hosting center so customers do not have to have the infrastructure necessary to run an application. They are in the business of helping others create and manage effective relationships, assisting in the optimization of contacts and maximization of opportunities. They also collect and evaluate predefined metrics so that they can project, control, and benchmark efficiencies. [ccxxix]

Type
Public Company

Ticker Symbol
PSFT

Category
Software Developer/ASP

CEO, President, Director
Craig Conway

Headquarters
4460 Hacienda Drive
Pleasanton, CA 94588
Phone: (925) 694-3000
Fax: (925) 225-3100
www.peoplesoft.com

Number of Employees
8,019

PeopleSoft	2000	1999	1998
Revenue	1736.5	1429.1	1313.7
Revenue Growth	22%	9%	
Net Income	145.7	-177.8	143.2
Profit Margin	8%	-12%	11%
Assets	1985.2	1687.9	1440.6
Liabilities	960.9	923.3	776.2
Market Cap	10695.844	5995.017	4430.066

www.hoovers.com/annuals/8/0,2168,14838,00.html

NetLedger

Netledger is ranked as the no.3 ASP by ASPScope. ASPnews includes them in their list of the top 20 ASPs. Netledger is specialized towards serving the accounting and finance industry, an industry whose use of outsourcing services is growing immensely.

NetLedger is backed by Oracle chairman Larry Ellison and runs on Oracle 8i.
NetLedger's Web-based system includes:

- Accounting
- Payroll
- CRM
- Online commerce
- Customer ordering
- Employee, customer, supplier remote access.
- Credit card processing
- Bill pay

NetLedger also provides enhanced, integrated solutions to small businesses through its strategic partnerships including:

- Yahoo
- ADP
- OfficeMax
- OneCore.com
- Stamps.com
- Paytrust
- New England Business Service
- Innovative Merchant Solutions.

The entire suite of services costs $99/month.[ccxxx]

Type
Private Company

Category
ASP

CEO, President
Evan Goldberg

VP Business Development
Jodi Maxson

Headquarters
NetLedger, Inc.
2955 Campus Drive,
Suite 175
San Mateo, CA
94403-2511
Phone: (650)627-1000
Fax(650)627-1001
www.netl.com edger

Ranked as the no.10 ASP by Gartner Group. One of three ASPs recommended as nearing profitability by Summitt Strategies Vice President Laurie McCabe.

TeleComputing, founded in Norway in 1997, is the largest ASP in Europe and the third largest ASP in revenues worldwide.

In 2001, the Company also launched a global Service Provider Solution software business that provides infrastructure and consultative solutions to companies who wish to provide TeleComputing or private label ASP services to their own customer base. Both businesses leverage TECOS™ developed to manage Information Technology costs and complexity, while improving accessibility, reliability and security for over 400 satisfied customers worldwide.

The Company has a presence in Norway, Sweden and the U.S. with more than approximately 200 employees and seven offices. TeleComputing has strategic business relationships with Microsoft, Citrix Systems, Exodus and Compaq.

Type
Private Company

Category
ASP

CEO, President
Jason Donahue

Headquarters
Ft. Lauderdale
6700 N. Andrews Avenue,
Suite 200
Fort Lauderdale,
FL 33309
T: +1 954-229-2900
F: +1 954-229-2901

Number of Employees
Over 200

Agilera has been hosting enterprise applications for over five years and has developed a proven track record. They are ranked as the no.8 ASP by Gartner Group and included in ASPnews' list of the top 20 ASPs.

Agilera is a full-service, pure-play application service provider (ASP) that offers a flexible hosting platform for IT and e-business operations.

Agilera was founded by CIBER, Inc., the 27-year international systems integrator; Verio Inc., the world's largest Web hosting company; and Centennial Ventures, Colorado's largest venture capital firm.

"We began hosting enterprise applications in 1996, when Application Service Providers first emerged. Which means that many of our customers have been pleased with our service for years, not months. And we are much farther down this road than most ASPs. There are no bugs to be worked out in our network, staff or offerings. We've had time to respond to our customers' changing needs and to innovate, and we've got a perspective and the experience that an ASP start-up can't possibly have."[ccxxxi]

Type
Private Company

Category
Enterprise ASP

CEO
Robert Unger

Contact
Shane Thurston
Regional Sales Director
Phone: (303)874-5850

Headquarters
Agilera Headquarters
9780 Mt. Pyramid Ct.,
Suite 300
Englewood, CO 80112
Phone: (888)878-9828
www.agilera.com

One of three ASPs recommended as nearing profitability by Summitt Strategies Vice President Laurie McCabe.

EchoMail, Inc. develops E-Mail solutions for the financial services, consumer/retail, government, high-tech and telecommunications industries. The EchoMail Suite powers large volumes of inbound and outbound E-Mail by automatically receiving, processing, responding,

Founded in 1994, EchoMail specializes in intelligent messaging for relationship marketing and management storing, and tracking all Correspondence in an ASP environment. EchoMail, Inc., The E-Mail Company™, is located in the heart of world-renowned Harvard Square, close to the campuses of Harvard University and the Massachusetts Institute of Technology (MIT)..

EchoMail sells its products and services through direct sales, as well as through a host of independent resellers. Partnerships enable distribution of EchoMail's products and services worldwide.

Type
Private Company

Category
ASP/ E-mail Solutions

CEO, President
V.A. Shiva

Headquarters
EchoMail, Inc.
66 Church Street
Cambridge, MA 02138
Phone: (617) 354-8585
Toll: (888) 354-8585
Fax: (617) 354-8899

VSP TARGET COMPANIES

A vertical service provider. One of three ASPs recommended as nearing profitability by Summitt Strategies Vice President Laurie McCabe. Included on ASPnews' list of the top 20 ASPs.

The Trizetto Group, Inc. provides information technology solutions and services to the healthcare industry, including remotely hosted applications, client/server software systems, an Internet platform, and consulting and business outsourcing services. The Company offers three sets of complementary products and services: ASP solutions, HealtheWare and HealthWeb.

ASP solutions offer pre-integrated, remotely hosted third party and proprietary applications and related services to healthcare payer organizations, benefits administrators and providers. HealtheWare offers software applications to the payer and benefits administration markets on either a hosted or a licensed basis. HealthWeb is the Company's Internet platform, which facilitates information exchange and commerce over the Internet between health plans and providers, employers and health plan members.[ccxxxii]

Type
Public Company

Ticker Symbol
TZIX

Category
VSP / Healthcare Industry

CEO, President, Chairmen
Jeffrey Margolis

Contact Name
Dave Pinket, VP of ASP partnerships and Alliances
Phone: (303)495-7026

Headquarters
567 San Nicolas Drive, Suite 360
Newport Beach, CA 92660
Phone: (949) 719-2200
Fax: (949) 219-2197
www.trizetto.com

Number of employees
1,600

Trizetto	2000	1999	1998
Revenue	89.1	32.9	11.4
Revenue Growth	171%	189%	
Net Income	-42.3	-7.9	0.1
Profit Margin	-47%	-24%	1%
Assets	363.8	68.4	8.7
Liabilities	94.3	17.1	3
Market Cap	610.854	1008.425	n/a

www.hoovers.com/annuals/6/0,2168,60786,00.html

Vertical Service Provider. Ranked as the no.8 ASP on ASPScope's list of the top 25 ASPs. Included in ASPnews' list of the top 20 ASPs.

McAfee.com Corporation provides online personal computer (PC) management products and services for consumers. Through its Website, www.McAfee.com, the Company allows consumers to secure, repair, update and upgrade their PCs.

As an applications service provider (ASP), the Company generates revenue by encouraging PC users to subscribe to its service. Subscriptions allow users to access online, version-less PC security and management software applications, which the Company hosts on its servers.

McAfee.com's applications allow its subscribers to manage their PCs by checking for and eliminating viruses, optimizing PC system performance, repairing problems and updating outdated software. The Company also offers relevant content and contextual e-commerce services that enable users to maximize their PC investment.[ccxxxiii]

Type
Public Company

Ticker Symbol
MCAF

Category
VSP/ PC Industry

CEO, President, Director
Srivats Sampath

Headquarters
535 Oakmead Parkway
Sunnyvale, CA 94085

Phone: (408) 992-8100
Fax: (408) 720-8450

Number of Employees
148

MCAFEE	2000	1999	1998
Revenue	46.9	24.5	6.3
Revenue Growth	91%	289%	
Net Income	-27.5	-27.9	-2
Profit Margin	-59%	-114%	-32%
Assets	98.1	95.3	2.5
Liabilities	44.6	39.3	7.6
Market Cap	223	1710	n/a

http://www.hoovers.com/annuals/1/0,2168,61381,00.html

VSPs Receiving Funding from CrossPoint Investment Firm

DemandTec www.demandtec.com	Mike Neal, CEO	50 First Street San Francisco, CA 94105	(415) 995-8570	Apps for pricing and promotion
RedSpark www.redspark.com	Dominic Gallello, Pres & CEO	642 Harrison Street San Francisco, CA 94107	(800) REDSPARK (415) 547-2020	Apps used to accelerate product development and sourcing processes
Believe www.believe.com		3203 Scott Boulevard Santa Clara, CA 95054	(408) 982-8600	computer animation
AristaSoft www.aristasoft.com	Drew Hoffman, Co- Founder, Pres & CEO	450 Holger Way San Jose, CA 95134	(888) 972-9950	business processes
Crossvue www.crossvue.com	Aziz Valliani, CEO	3051 North First Street San Jose, CA 95134	(408) 468-5500 (877) 932-2782	Digital Receipt Management
InveSmart www.invesmart.com	Craig Kirsch, CEO & CFO	Penn Center West Six, Suite 211 Pittsburgh, PA 15276	(412) 249-3200	Retirement financial services
MyAssociation, Inc. www.myassociation.com	Richard D. Hanks, Chairman, Pres & CEO	1500 K Street, NW 9th Floor Washington, DC 20005	(202) 367-1025	Software enabling the businesses to integrate databases
eSilicon www.esilicon.com	Jack Harding, Chairman, Pres & CEO	3920 Freedom Circle Santa Clara, CA 95054	(408) 567-5637	Fulfill design requirements
Novopoint www.novopoint.com	Robert Schult, Pres & CEO	440 West Ontario, Suite 300 Chicago, IL 60610	(312) 762-9400	Procurement in the food and beverage industry
Swan Systems www.swansystems.com	Confidential	425 Market Street, Suite 2650 San Francisco, CA 94105	(415) 901-7700 (888) 447-7926	Info management tools for marketing & advertising
Dorado www.dorado.com	Tom Lounibos, Pres & CEO	1900 O'Farrell Street, Suite 200 San Mateo, CA 94403	(650) 227-7300	eCommerce and apps for CRM in banking industry
TheSupply.com www.thesupply.com	Geoff Wild, Pres and CEO	2890 Zanker Road, Suite 101 San Jose, CA 95134	(408) 519 6800 (877) 525 8808	e-commerce platform for the Electronics Materials industry
VitalLink www.vitallink.com	Glenn Bacheller, CEO	270 14th Street San Francisco, CA 94103	(877) 770-7795	management solutions to small businesses

A Managed Service Provider owned by WorldCom. All data is secured and stored in the owned and operated data centers of the parent company.

Type
Public Company

Ticker Symbol
DIGX

Category
MSP

CEO,President, Director
Mark Shull

Headquarters
One Digex Plaza
Beltsville, MD 20705
Phone: (240) 264-2000

Number of Employees 1,315

Digex, Incorporated is a provider of managed Web hosting services to businesses operating mission-critical, multi-functional Websites. The Company also offers related value-added services, such as firewall management, stress testing and consulting services, including capacity and migration planning and database optimization. The Company's customers use its services to rapidly and cost-effectively deploy secure and reliable business solutions, including online banking, online procurement and electronic retailing.

The Company's services include:

- Managed Hosting Services
- Enterprise Services
- Application Hosting Services
- Consulting Services

On September 1, 2000, Intermedia Communications, Inc., the parent company of Digex, entered into a merger agreement with WorldCom, Inc. Upon consummation of the merger, a subsidiary of WorldCom will be merged with and into Intermedia, and Intermedia will become a subsidiary of WorldCom.

Digex	**2000**	**1999**	**1998**
Revenue	168.1	59.8	22.6
Revenue Growth	181%	165%	
Net Income	-143.1	-65	-16.6
Profit Margin	-85%	-109%	-73%
Assets	521.1	344.3	77.7
Liabilities	104.4	54.1	6.9
Market Cap	1437.75	4305	n/a

www.hoovers.com/annuals/0/0,2168,52600,00.html

A managed service provider and owner of its own primary data center facility. Clients portfolio consists of both small and medium sized businesses as well as larger enterprises. The executive management is currently looking at careful expansion, possibly co-location of some data at an additional facility.

Type
Private Company

Category
MSP

CEO, Board Chairman
Roger Ramsey
Sen. VP Business Dev.
Scott Shadle

Contact
Adam Drutz, VP and General Manager

Headquarters
757 N. Eldridge
2nd Floor
Houston, TX 77079
281.584.4500 (Main)
281.584.4550 (Fax)
877.782.6959 (Support)
866.VCENTER (Toll Free)

VeriCenter provides an advanced operating infrastructure for hosting Internet-based business applications. The company maintains partnerships with leading software, networking and hardware companies including BMC Software, Cisco, Citrix® Systems, Compaq, EMC, Intel, Microsoft, Oracle and Sun.

VeriCenter owns and operates its own primary data center facility. Additional data center space is utilized in a collocation arrangement with a facility located in Dallas.

VeriCenter serves a wide range of clients with 15% of its business coming from established ASPs, and the other 85% small to medium sized businesses.

VeriCenter's OpCenter™ Architecture provides a unique combination of redundancy and flexibility offering customers any combination of shared, dedicated, hands-on, and hands-off environments. OpCenter is a suite of services for advanced Web and application hosting. It is comprised of the:

- Report Center- Reports on performance, health and application usage
- Watch Center- Real-time and continuous monitoring of your application.
- Security Center- Industrial-strength security options based on your business needs.
- Service Center- Continuous maintenance &administration of our systems and your application
- SystemCenter- Advanced system and network design
- Host Center- State-of-the-art data center and hosting facilities[ccxxxiv]

ASPs Providing Business Process Applications

A vertical service provider with software targeted towards serving the BPO—one of the largest segments of outsourcing. Included on ASPnews' list of the top 20 ASPs. Included on Red Herring's list of the top 50 private technology companies.

Portera is a vertical service provider (VSP) dedicated to helping consulting firms, government contractors and other professional services organizations succeed.

Portera's industry-tailored solutions - including its subscription-based ServicePort™ suite of professional services automation (PSA) applications - enable these organizations to focus on revenue-generating activities by delivering the software functionality needed to effectively manage finances, resources, projects and relationships. The ServicePort suite is delivered over the company's global service delivery infrastructure, ensuring the highest levels of security, reliability and performance.[ccxxxv]

Type
Private Company

Category
VSP/BPO market

CEO
Gary L. Steele

VP Corporate Development
Steve Rhoades

Utah Presence
No Offices

Headquarters
Silicon Valley
1688 Dell Avenue
Campbell, CA 95008
Phone: (888) 263-8482
(408) 364-3600
Fax: (408) 341-1830
www.portera.com

An ASP with applications focused on serving business processing needs. Personal Interview with the VP of Marketing revealed that they are looking at expansion and interested in participating in a brainstorming session for further investigation of Utah's potential.

Critical Technologies, Inc. ("Critical) is an institutional venture-backed, privately held company providing document management solutions to global business entities. Founded in 1998, Critical has become a leading document management systems integrator in the Southwest. It possesses more than two hundred years of combined experience in document management system sales, consulting, and integration.

Critical Technologies' clients – industry leaders in financial services companies and higher education institutions - include UC Lending, Aegis, Clear Channel Communications, the University of Oklahoma, American General Annuities, First American Real Estate Services, Southwest Airlines, Arvest Bank Group and many others.

FilesOnTheNet

FilesOnTheNet is a document management system application provided by Critical. It is a. FilesOnTheNet sales and support offices are located in key cities throughout the United States. Critical is actively recruiting and enrolling Alliance Partners. Application software providers, web portals, large data storage and service organizations are partnering with FilesOnTheNet to provide enhanced services to their respective customer bases. Critical also has an active Net Partner Program for Resellers

Personal Interview

Critical Technologies sees the market for their services as expanding immensely.

Required Expansion Characteristics:

- Internet Backbone, connectivity and redundancy
- Available workforce, programmers etc.
- Low cost of Labor
- Low cost of Rent

Paul Carman, VP of Marketing indicated that although they are looking at expansion they are unfamiliar with the economic environment in Utah. *"I just know they have great skiing there."*

Type
Private Company

Category
ASP

CEO
Mick Duncan

Contact

Paul Carman
Vice President, Marketing
FilesOnTheNet.com
Phone 1-405.235.8400
1-800.411.1831
Fax 1-405.235.8490
Cell 1-405.641.3621
pcarman@criticaltech.com
www.filesonthenet.com

Headquarters
100 Park Ave Suite 500
Oklahoma, OK 73102
www.criticaltech.com
(405) 235-8400 X125

Number of Employees
45

Appendix 1

Glossary

xSP Market Participants[ccxxxvi]

Application Service Providers (ASP)

Application Service Providers offer individuals or enterprises access to software applications and related support services over the internet.

Hosting Service Provider (HSP)

Hosting Service Providers or more commonly, Web Hosts, are companies that make space and services available for people to host web-based content. Hosting Providers range from small companies that rent space in larger providers facilities to large companies that own their own buildings, equipment, and sometimes bandwidth in multiple cities throughout the world. There are three main types of hosting services: shared, dedicated, and colocation.

Internet Service Provider (ISP)

ISPs are organizations that provide consumers and businesses with access to the Internet. Internet Service Providers purchase bandwidth from NSPS that have direct links to the Internet and then in turn sell that bandwidth in smaller pieces. Typical access services range from dial-up modem, DSL and ISDN all the way up to private line connectivity (T3, T1, fractional T1, etc.).

Managed Service Providers (MSP)

The term Managed Service Provider (MSP) is used to refer to service providers handling the delivery and management of network-based services, applications and equipment. Managed Service Providers can be hosting companies or access providers that are moving into next generation services such as IP Telephony, Messaging & Call Center, VPNs, Managed Firewalls, Server & Network monitoring and reporting and more.

Network Service Provider (NSP)

Network service providers are comprised of telecommunications companies and data carriers; wireless-communications service providers, Internet service providers and cable operators offering high-speed Internet access. They sell bandwidth and network connectivity to ISPs, HSPs, ASPs, and MSPs. NSPs are more commonly referred to as backbone providers, because they offer direct access to the Internet backbone and the Network Access Points (NAPS).

Software Infrastructure Service Provider

Offer Internet operations services that span from the architecture and procurement of the hardware, software and data center space, to the ongoing management and support of Internet systems up to the application level. SISPs offer the combined services of a data center and an MSP, along with many other value-added services.[ccxxxvii]

Storage Service Provider (SSP)

Storage Service Providers are Service Providers that specifically host storage applications. An SSP provides services for companies that wish to outsource their data storage and management. Basic services are available for a few cents per megabyte per month and costs increase as you get into terabytes of data stored and add-on services like backups, real-time data replication and a 99.999% uptime guarantee.

Vertical Service Provider (VSP)

VSPs aim focused value propositions, solutions and services at discrete, industry-specific markets. This term is mainly spawned from ASPs and MSPs who are focusing on specific industries but could easily be applied to traditional access and hosting providers who are doing the same.

Web Site Monitoring

A package of monitoring and reporting tools for proactive system management, including bandwidth, historical performance trend reporting, and URL monitoring and events log.

Appendix 1 (continued)

Traffic Distribution
Distribution of Internet traffic across multiple services and geographically dispersed data centers for maximum availability and performance.

Data Backup and Restore
Data backup and restore services for individual files, file systems, databases, and applications

Content Distribution
Replication of frequently accessed data at geographically dispersed cache locations for more efficient content distribution

Security
Intrusion detection monitoring and management, network vulnerability analysis, and firewall support and maintenance.

Performance Optimization
Real-time measurement of Web site performance and performance trend, and online transaction processes, identifying the exact source of a Web site slowdown and providing peak-period performance monitoring and seasonality analysis.[ccxxxviii]

Appendix 2[ccxxxix]

AAA: ASP application aggregator

AIP: Application infrastructure provider

BSP: Business service provider

CRM: Customer relationship management

EDI: Electronic Data Interchange; a communications standard for business transactions.

ERM: Enterprise relationship management; solutions for enterprise-wide data sharing.

ERP: Enterprise resource planning; a system or process integrating all manufacturing and related applications for an entire enterprise.

Fat Client: A computer that includes an operating system and installed applications and can run either as a standalone or in a server environment. See also Thin Client

FSP: Full service provider

ISP: Internet service provider

ISV: Independent software vendor

MsecSP: Managed security service provider

MSP: Management service provider

NSP: Network service provider

SLA: Service-level agreement; an agreement between an ASP and a company guaranteeing a certain level of service.

SSP: Storage service provider

Thin client: A computer that accesses applications and data from a server.

VSP: Vertical application service provider

Appendix 3

Outsourcing Segments *(Source: www.outsourcing-suppliers.com)*		
Accounting	Ecommerce	Medical
Administration	EDI Solution Provider	Networks
Aerospace	Education	Offshore
Applications Management	Email	Outplacement
Architecture	Engineering	Pharmaceutical
ASP	ERP	Printing
Aviation	Expert Witnesses	Project Management
Audit	Facilities Management	Public Relations
Benchmarking	Finance	Purchasing
BPO	Forensic Experts	Real Estate
BSP	Healthcare Management	Research
Business to Business	Human Resources	Sales
Call Centers	Insurance	Software and Application
Chemical	ISP	Staffing
Collections	IT	Technical Solution Provider
Consulting	Knowledge Management	Telecommunications
Contract Packaging	Legal	Training
CRM	Litigation Support	Translation
Data Centers	Logistics	Voice Recognition
Data Management	Mainframe	Web Development
Desktop	Manufacturing	Warehousing
Documentation	Marketing	Wireless
Drug Testing	Medical Research & Testing	

Appendix 4

Top 20 ASPs
Alphabetical Order

Company	Description	Location
Agilera	Enterprise ASP	Englewood, CO
Aristasoft	Enterprise ASP, Vertical service provider	San Carlos, CA
Corio	Enterprise ASP	San Carlos, CA
eOnline	Enterprise ASP	Cupertino, CA
Intranets.com	Web service vendor	Woburn, MA.
Jamcracker	ASP aggregator	Cupertino, CA
McAfee.com	Web service vendor, Web service aggregator	Sunnyvale, CA
netASPx	Enterprise ASP	Herndon, VA
NetLedger	Web service vendor	San Mateo, CA
OpenAir.com	Web service vendor	Boston, MA
Portera Systems	Vertical service provider	Campbell, CA
Qwest Cyber.Solutions	Enterprise ASP	Denver, CO
Salesforce.com	Web service vendor	San Francisco, CA
Siennax	Enterprise ASP, Business ASP	Amstelveen, Netherlands
StorageNetworks	Storage service provider	Waltham, MA
Surebridge	Enterprise ASP	Lexington, MA
TriZetto Group	Vertical service provider, Web services ISV	Newport Beach, CA
Upshot.com	Web service vendor	Mountain View, CA
USinternetworking	Enterprise ASP, Application infrastructure provider	Annapolis, MD
WebEx	Web service provider	San Jose, CA

Appendix 5

Top 25 ASPs for June 2001
Produced by ASPScope

1. Corio
2. cMeRun
3. NetLedger
4. Cosaweb
5. Infinium
6. PeopleSoft
7. SureBridge
8. McAfee
9. Salesforce.com
10. Usinternetworking
11. Oracle
12. Mi8
13. Bluetrain
14. Fuegotech
15. Apogee Networks
16. Wverso Technologies
17. Resonate
18. QuantumLynx
19. Pointivity
20. Freeliant
21. b2bsolutionsonline
22. Winstar
23. Personable
24. Cable & Wireless
25. NTG

Appendix 6

IT Service Leaders

Company	CEO	Fortune Rank	Address	Phone	Website		Revenue 2000
IBM (Global Services)	Louis V. Gerstner, Jr.	8	New Orchard Rd. Armonk, NY 10504	914/499-1900	www.ibm.com/services	$	88,396,000,000
EDS	Richard Brown	106	5400 Legacy Dr Plano, TX 75024	972/604-6000	www.eds.com	$	19,227,000,000
CSC	Van B. Honeycutt	200	2100 East Grand Ave El Segundo, CA 90245	310/615-0311	www.csc.com	$	9,371,000,000
ACS *In BPO also*	Jeff Rich	710	2828 North Haskell Ave Dallas, TX 75204	214/841-6111	www.acs-inc.com	$	1,962,500,000
Unisys	Lawrence A. Weinbach	272	Unisys Way Blue Bell, PA 19424	215/986-4011	www.unisys.com	$	6,885,000,000
SAIC	J. Robert Beyster	296	10260 Campus Point Dr. San Diego, CA 92121	858/546-6000	www.saic.com	$	5,530,000,000
Accenture	Joe W. Forehand		1345 Avenue of the Americas New York, NY 10105	917/452-4400	www.accenture.com	$	8,941,000,000
Keane	Brian T. Keane		10 City Square Boston, MA 02129	617/241-9200	www.keane.com	$	871,596,000

Appendix 7

BPO Leaders

Company	CEO	Fortune Rank	Address	Phone	Website	Revenue 2000
ADP	Arthur Weinbach	286	One ADP Blvd. Roseland, NJ 07068	973/974-5500	www.adp.com	$ 6,287,512,000
Paychex	B. Thomas Golisano	890	911 Panorama Trail South Rochester, NY 14625	716/385-6666	www.paychex.com	$ 1,459,400,000 1/2 BPO
Administaff	Paul Sarvadi	448	19001 Crescent Springs Dr Houston, TX	281/358-8986	www.administaff.com	$ 3,708,531,000
Ceridian	Ronald Turner	924	3311 East Old Shakopee Rd Minneapolis, MN 55425	952/853-8100	www.ceridian.com	$ 1,175,700,000
Staff Leasing	Michael K. Phippen	508	600 301Blvd. West, Ste 202 Bradenton, FL 34205	941/748-4540	www.staff-leasing.com	$ 3,104,240,000

Utah IT Outsourcing
Companies Contacted

Appendix 8

Company	Contact	Address	Phone	Services
Uinta River Technologies	Max Adams	Ute Indian Tribe Water Settlement Dept Duchesne, UT 84026	435/722-3136 ext. 4213	Software development/Production Software adaptation
IBM	David Russell		801/328-6151	
Visicon	Tom Gibbons Director of Tech.	480 East Winchester, Ste 140 Salt Lake City, UT 84107	801/266-1111	Develop Software for Manufacturing
Mentor Systems	Winston Gillis	969 Ben Lomond Ave South Ogden, UT 84403	801/926-2206	Business Solutions Help Desk/On site Tech Support
Business Information Technology	Mark Tolman	470 East 3900 South South Salt Lake, UT 84107	801/281-3765	Application/Database Development Business Process Analysis/Design System Maintenance (Intranet Based)
Microworks	Craig	2749 Parleys Way, Ste 340 Salt Lake City, UT 84109	801/487-9400	Network Installation/Administration Commercial Phone Systems
Network Integration Consulting Services	Paul Warnick Managing Partner	887 West Baxter South Jordan, UT 84095	801/254-3125	Network Installation/Administration Reengineering Wireless Services/Voice Over IP
Tek Systems	Casey Weirman	6975 South Union Park Center Midvale, UT 84047	801/578-4000	IT/Telecommunications Services Project Program Management Technical Staffing
SurgeWorks	Mary Jo Ahlin	4505 South Wasatch Blvd Salt Lake City, UT 84124	801/272-9800	IT Project Management Staff Augmentation Project Development
Classy Consulting	Jacob Bruner Vice President	111 East 5600 South Salt Lake City, UT 84107	801/743-0400	Custom Database Development Data Driven Web Page Development
Information Technology International	Will McCoy CEO	965 East Murray-Hollady Rd, Ste 1A Salt Lake City, UT 84117	801/268-8600	IT Strategic Planning Technical Programming/Training
Perot Systems	Sean Reid	1815 South State Orem, UT 84058	801/852-5800	Application Development
Domain Systems	Brant Wadsworth Regional Manager	56 South 200 East Farmington, UT 84025	801/447-3777	Application Programming System Implementation Product Development

Appendix 8 (continued)

Company	Contact	Address	Phone	Services
DynaQuest	Skip Roberts CEO		801/359-7700	Facilities Management Desktop/Network IT Services
Future Vision Technologies	Brand Banyi Owner	498 West 8360 South Salt Lake City, UT 84070	801/265-1153	Business Processes Data Storage/Management/Extraction
Software Technology Group	Jeff Sadenberg	5 Triad Center, #600 Salt Lake City, UT 84180	801/595-1000	IT Services for Business Services
Sento	Nancy Baumgartner Vice President of Sales	808 East Utah Valley Drive American Fork, UT 84003	801/492-2000	Technical Support Customer Care/Sales (Powered by Web)
Marketing Ally	Tina Okolowitz	501 North 900 East Provo, UT 84606	801/374-8709 ext 217	Contract Management Inbound Customer Service/Support Lead generation, market research B2B registration/sales, appointments
Alorica	Vanda Scott		801/907-3088	Technical Support

Appendix 9

RURAL SMART SITES

Rural Utah's Smart Sites are funded with a $750,000 appropriation from the Utah State Legislature.

Sanpete County

Sanpete is proposing two sites, one in Mt. Pleasant, and one in Ephraim. Phase one will consist of a 2,800 square foot building in Mt. Pleasant (41 West Main Street). The site will include 24 workstations. Phase two will include 4,000 square feet of workspace on the second floor of the High Tech building on the Snow West Campus, in Ephraim (345 West 100 North). There is a fiber ring installed by U of U between Ephriam and Mount Pleasant. U of U, Quest fiber coming from Salt Lake to Snow College and to Richfield.

Carbon and Emery Counties
(The Southeast Utah Community Development Corporation)

This Smart Site will be located in a 20,000 square foot building recently donated to Emery County by Energy West (Utah Power and Light). The facility is located 2 miles north of Huntington, near Highway 10. It is about a 20-minute drive from both Price and Castle Dale to the facility. The initial Smart Site will have 25 workstations. Emery Telephone supposedly installed fiber to all schools. There is a question if Huntington has fiber.

Roosevelt City

Roosevelt has two sites available, both of which are owned by Uintah Basin Telephone Association. The first is a 13,000 square foot building that until recently was the company office of the Uintah Basin Telephone Association, and therefore has abundant bandwidth. This site is located five miles west of Roosevelt on Highway 40. A second, smaller site is also available in downtown Roosevelt. The initial phase calls for 15 workstations. U of U is planning OC3 microwave connection from Vernal to Roosevelt.

Cedar City

The Cedar City Smart Site is a privately owned venture, AMC, working in partnership with Southern Utah University. AMC is just finishing remodeling a 4,500 square foot building near the airport (2331 West Park Avenue). This building currently has T-1 bandwidth and 96 workstations. AMC site has a DS3 (28T1) microwave connection from 2136 N. Main Cedar City.

Appendix 9 (continued)

Blanding

The Blanding Smart Site is located on the CEU San Juan Campus in the Small Business Development Center (SBDC). Initially it will support six workstations and an administrative office. The site has room for expansion to allow more workstations. This site has UEM, San Juan Media fiber coming into the campus site. With planned equipment change they will have 35 Mbps available. UEN, ITS plan for OC3 with optiona1 OC3 from Green River (proposed fiber junction) to Moab and Blanding CEU Media center.

Box Elder/Cache

The Box Elder/Cache Consortium offers two regional facilities—one in Brigham City and one in Logan. The Brigham City Smart Site located on the third floor of the Brigham City Tech Center at 15 West Forest Street, and will also have space available in the BesTek building. Total floor space for the two facilities is 16,000 square feet.

The Logan Smart Site will be located in the Utah State University Research Park. The consortium's plans call for an initial start-up of 25 workstations, with plans to expand to 200 workstations. Box Elder County could expand microwave from Little Mt. to Brigham City. Cache County has DS3 (28T1) microwave connection to USU.

Appendix 10

Salt Lake City Competitive Profile

Company	Contact	Phone #	Web Site	Employees	Locations	Square feet	Services Offered	Presence outside of Utah
Colocate America 3949 South 200 East Salt Lake City, Ut 84107	Tom Christopulos	(801) 892-1000	www.colocateamerica.com	2	1	9100	Colo MSP	No
Consonus 488 East 6400 South Salt Lake City, Ut 84117	Bryan Boam	(801) 743-6208	www.consonus.com	12	3 Jordan Landing West Center Metro Center	 30000 22000 2500	Colo MSP	Yes
Verado 12244 South Business Park Place Draper, Ut 84020	Jack McDonald	(801) 572-9202	www.firstworld.com	15	1	15000	Colo MSP	Yes
Level3 5201 South Green Murray, Ut 84123		(801) 288-4600	www.level3.com	4	1		Colo	Yes
Switch & Data 179 Social Hall Ave. Salt Lake City, Ut 84111		(801) 322-2719	www.switchanddata.com	4	1	27000	Colo	Yes
Center 7 333 South 520 West Lindon, Ut 84042	Kelly Phillips	(801) 805-3000	www.center7.com	70	1	106000 12000	Colo MSP ASP	No
ViaWest 30 East Broadway Suite 200 Salt Lake City, Ut 84111	Abbie Sonntag	(801) 994-8800	www.viawest.com	8	1	1000	Colo	Yes
Panurgy 857 West South Jordan Parkway South Jordan, Ut 84095	Stan Call	(801) 364-7007	www.panurgy.com	6	1	7000		
Relera 572 South Delong Salt Lake City, Ut 84104	Pat Christensen	(801) 844-2016	www.relera.com	24	1	10000	Colo MSP SSP	Yes

Appendix 10 (continued)								
BuildingColo 6322 South 3000 East Salt Lake City, Ut 84121	Al Allred	(801) 993-2051	www.buildingcolo.com	5	1 1 under constr.	4000	Colo MSP ASP via affiliations	No
Western On Line Service 225 East 2100 South Salt Lake City, Ut 84115	John Ellsworth	(801) 486-6200	www.wolsi.com	2	1	525	Colo ISP	No
X-Mission 51 East 400 South Suite 200 Salt Lake City, Ut 84111	Richard McAllister	(801) 539-0852	www.xmission.com	35	1	3000	Colo ISP Moving into MSP	No
eSmartbuildings Old mill corporate center 6322 South 3000 E Salt Lake City, Ut 84121	Dave Zundel	(801) 944-7722		4	1	6000	Colo ASP	No
Broadband Solutions 649 West 9400 South Sandy, Ut 84070	Sam Park	(801) 984-0232	www.bbsc.net	12	1	0	ISP Looking to enter HSP market	No
Electric Lightwave Inc. 4 Triad Center Suite 200 Salt Lake City, UT 84180	Gary Nieboer	(801) 924-3000	www.eli.net	43	3 SLC Ogden SLC	 700 1200 700	Colo ISP MSP, & ASP via affiliation	Yes
Netpoint LLC 775 W. 1200 N., Suite 200 Springville, UT 84663	Pepper Harward	(801) 489-6014	www.netpointllc.com	25	1	9000	Colo MSP	No
Aros Network 28 South 400 East Salt Lake City, Ut 84111	Audrey Jones	(801) 924-9074	www.aros.net	10	1	1500	Colo ISP	No

Appendix 11

Top Software Companies in Utah (Top 35 Ranked by Number of Employees)

Note: (If annual sales figures for a given company are above $100 million, the company is included despite its number of employees)

	Company	Contact	Products/Services	Number of Employees	Annual Sales
1	Novell Inc. Orem, Utah (801) 861-7000	Eric Schmidt (CEO)	Networking software development. Year Est. - 1983	4,500 (Utah)	$1 Billion
2	Franklin Covey Co. Electronic Solutions Division Salt Lake City, Utah (801) 817-6208	Todd Simons (Director)	Productivity Software and Hardware Year Est. - 1983	3,500	$500-750 Million
3	Modus Media Lindon, Utah (801) 431-5000	Terry Leahy (CEO)	Outsource company for software clients to have pre-packing software, call center customer service, and CD replication. Year Est. - 1995	1,500 (Utah)	$100 Million
4	Sento Innovations Corporation American Fork, Utah (801) 492-2000	Dennis Herrick (CEO)	Development, support of leading hardware and software technologies.	990	$20 Million
5	Evans & Sutherland Salt Lake City, Utah (801) 588-1000	James R. Oyler (President & CEO)	Develops and manufactures hardware and software to produce highly realistic 3D synthetic worlds. Year Est. - 1968	860	$100-250 Million
6	Epixtech, Inc. Provo, Utah (801) 223-5202	Lana Porter (President)	Hardware and software development for automated library systems. Year Est. - 1983	744	$111 Million

7	Channel Point Provo, Utah (801) 373-7345	Bill Woahn (President)	Computer Software	460	$50-$100 Million
8	FlowServ (formerly Valtek) Springville, Utah (801) 489-8611	Jeff Allen (CEO)	Software development used to purchased custom automobile valves through FlowServ. Year Est. - 1966	450	$100 Million
9	Insurquote Systems, Inc. Provo, UT (801) 373-7345	Bill Woahn (President)	Computer Software - Insurance Rating Systems Year Est. - 1986	350	$50-$100 Million
10	H K Systems Salt Lake City, UT (801) 530-4000	John Splude (President)	Automation Systems and Equipment Manufacturers.	350	$200 Million
11	Unisys Corporation Salt Lake City, Utah (801) 594-5000	Graham Helsby (Hardware Engineering Manager)	Information management solutions software. Year Est. - 1938	300	$1.5 billion
12	PowerQuest Corporation Orem, Utah (801) 437-8900	Paul Winn (President & CEO)	Software developer of partition and file system management tools. Year Est. - 1993	300	$28.6 Million
13	Sento Technical Innovations Corp. Orem, Utah (801) 226-3355	Keith Sorenson (CEO)	Leading developer of hardware and software technologies. Year Est. - 1986	250	$30 Million
14	3M Health Information Systems Murray, Utah (801) 265-4400	James Burgess (President)	Patent-based, health care information systems software. Year Est. - 1983	240	$90 Million

16	Intel Corportation American Fork, Utah (801) 763-2201	Ed Ekstrom (Vice President)	Networking Software 1991 Started in Utah	200	
17	TenFold Corporation Draper, Utah (801) (801) 495-1010	Gary Kennedy (President & CEO)	Software development for corporations. Year Est. - 1996	180 (UT) 500 (US)	$50-100 million
18	Shared Medical Systems Corp. Salt Lake City, UT (801) 539-4600	Frank Livell (President)	Computer Software	175	$50-$100 Million
19	Nextpage Provo, Utah (801) 229-6700	Brad Pelo (President)	Leading provider of software for personal electronic publishing, and commercial electronic publishing for personal computers. Year Est. - 1986	170	$15 - $20 Million
20	DHI Computing Service, Inc. Provo, Utah (801) 373-8518	Lynn Crandall (President)	Software/hardware for recording systems and network for financial institutions. Year Est. - 1954	165	$10 - $15 Million
21	Auto-Soft Division of Brooks Automation Salt Lake City, Utah (801) 322-2069	Van Norman (President)	Software development for automation handling for warehouses. Year Est. - 1985	160	$20 - $30 Million
22	Digital Technology International Orem, Utah (801) 853-5000	Don A. Oldham (CEO)	Newspaper Publishing Software System. Full-color pagination and management publishing system. Year Est. - 1980	130	$20 - $50 Million

23	Campus Pipeline Salt Lake City, Utah (801) 485-6000	Laura Kvinge (Director of Comm.)	Information Technology, Software and Internet Services. Year Est. - 1998	125	
24	Xactware Inc. Orem, Utah (801) 226-2251	James B. Loveland (President)	Insurance loss restoration work estimation software developer. Year Est. - 1986	125	$20-$50 Million
25	Sungard Expert Solutions Salt Lake City, Utah (801) 955-6100	Paul Erickson (President)	Computer Software	125	$20-$50 Million
26	Microsoft Corportation Salt Lake City, Utah (801) 333-8100	Dan Peay (Branch Manager)	Business Software	114	$1-1.5 Billion
27	Axent Technologies American Fork, Utah (801) 224-5306	John Becker (President)	Developer of system management software for UNIX systems. Year Est. - 1981	110	$30 Million
28	Sterling Wentworth Corp. Salt Lake City, UT (801) 355-9777	Gary Williams (President)	Computer Software	100+	$20-$50 Million
29	Dentrix Dental Systems American Fork, Utah (801) 763-9300	Kimball Wirig (President)	Software developer for the clinical and practice management dental offices. Year Est. - 1988	100	$8 Million
30	Fonix Corporation Orem, Utah (801) 553-6600 Phone	Thomas Murdock (President)	Innovation software company that develops voice recognition systems. Year Est. - 1994	100	$440,000
31	Spillman Technologies, Inc. Logan, UT (435) 736-1610	Richard Spillman (Owner)	Public Safety Software Year Est. - 1982	90	$10-$20 Million

32	Autosimulations, Inc. Bountiful, Utah (801) 298-1398	Van B. Norman (CEO)	3D Graphical Simulation Software	88	$10-20 Million
33	Tomax Technologies, Inc. Midvale, Utah (801) (801) 990-0909 Phone	Eric Olafson (President)	Tomax is a leading provider of distributed solutions for retail chains and distributors. Year Est. - 1981	84	$10 - $20 Million
34	Assist Cornerstone Technologies Salt Lake City, UT (801) 355-7744	Randall Crocker (VP of Marketing)	E-commerce system solution provider with complete real-time end-to-end software.	80	$10-20 Million
35	Singletrac Entertainment Technologies, Inc Salt Lake City, Utah (801) 398-6000	Michael Bartholomew (VP)	Software developer of computer video games for PlayStation and Nintendo systems. Year Est. - 1994	65	$500-750 Million

Source: 2000-2001 Utah Information Technology Association (UITA), InfoUSA Inc., 2000, and the Economic Development Corporation of Utah.

Appendix 12

ASP Provider Summary			
Company Name	**Products and Services Offered**		**Service Delivery Method**
Applicast, Inc.	Agile Microsoft SAP	Siebel Tumbleweed	GTE Data Services
Breakaway Solutions, Inc.	Strategy Consulting Esolutions	Application Hosting Systems Integration	Co-location at 11 data center with Exodus and Level 3
Corio, Inc.	Broadvision Cognos and E.piphany Commerce One	PeopleSoft SAP Siebel	Co-location with Exodus and Concentric for Web-hosting
EbaseOne Corporation	Great Plains Logility Sales Marimba	Microsoft Logix	Co-location with Level 3
Eonline, Inc.	SAP Financials HR CRM		Owns data center, partners with UUNET for connectivity
Futurelink Corporation	Corel Epicor Great Plains Microsoft	Onyx Pivotal SalesLogix	Owns 2 data centers
Interliant, Inc.	Consulting Web-hosting Application outsourcing (numerous) AppsOnline.com		Owns 3 data centers
Interpath Communications	SAP Financials HR R/3		Owns a data center and an 850-mile fiber optic network from Atlanta to Washington, DC
Push, Inc.	Alliance HRMS Great Plains Microsoft	QuickBooks SalesLogix Solomon	Building "community ASP" centers throughout California
Qwest Cyber.Solutions	Ariba Captura Oracle	PeopleSoft SAP Siebel	Global network with 4 data centers
Surebridge, Inc.	Baan Epicor Great Plains	Microsoft OneSoft Solomon	Not Disclosed
Telecomputing, Inc.	Microsoft Office Microsoft Exchange	Back Office E*biz	Co-location with UUNET
USInternetworking, Inc.	Ariba Broadbase Broadvision Lawson Microsoft	Oracle PeopleSoft Sagen Niku Siebel	Global network with 4 data centers
Xuma	Pre-integrated E-business solutions		Owns one data center

Appendix 12 (continued)

ASP Provider Summary (continued)		
Company Name	**Products and Services Offered**	**Service Delivery Method**
AristaSoft Corporation	Agile JD Edward Clarify Webridge	Co-location arrangement with Exodus
The LearningStation.com	Learning software from numerous publishers	Owns 1 data center
TriZetto Group, Inc.	Healthcare software designed for PPMs, payors, and administrative and financial systems	Developed 2 data centers
Agillon	Provides a comprehensive customer management solution	Partnered with Exodus for data center services
Capstan Systems, Inc.	Provides a proprietary designed Web-based supply chain management solution	Partnered with Exodus for data center services
EALITY, Inc.	Provides proprietary applications for day-to-day business functions not provided for ERP systems	Partnered with Pilot Network Services for data center services
Employease, Inc.	Provides Internet based human resources, employee benefits, and payroll administrative functions	Co-location arrangement with NextLink
UpShot.com	Developed a Web-based sales force automation solution	Partnered with Exodus for data center services
Critical Path, Inc.	Provides Web-based messaging and collaboration solutions	Hosting arrangements with Exodus, Level 3, and Qwest
Mail.com, Inc.	Provides advanced Internet messaging services	Co-location arrangement with Telehouse
NetEx	Provides secure e-mail delivery services	Owns 1 data center
WebEx	Developed a real-time, Internet-based collaboration service that enables participants to conduct meetings and presentations on-line	Co-locates servers with Frontier Global Services
AmQwest, Inc.	Enables and provides advanced hosting and monitoring services	Owns 1 of the largest data center in the Southeast; also co-locates servers with Level-3 and UUNET
Centerbeam, Inc.	Provides a subscription computer service designed to meet the infrastructure needs of small businesses; offers five key components: office infrastructure, data center services, private Internet access, business services, and customer care	All infrastructure provided via a "plug and play" offering to businesses
Digex	Provides advanced Web and application hosting services	Operates 4 Internet SmartCenters located in Maryland and California
Jamcracker	Provides the services as an ASP aggregator through its portal	Co-location agreement with Exodus
NaviSite, Inc.	Provides Web-hosting, E-commerce, and high availability solutions	

Source: Information Strategy: The Executive's Journal, Summer 2001

Endnotes:

[i] "Outsourcing Index 2000: Strategic Insights into U.S. Outsourcing." The Outsourcing Institute and Dun & Bradstreet. 7 May 2001 <http://www.outsourcing.com/OI_Agreements/OI_Index.pdf>.
[ii] http://www.itworld.com/Sec/2052/NWW010507feat2/
[iii] Ibid.
[iv] "Dun & Bradstreet Survey Forecasts 27 Percent Growth in Global Outsourcing Expenditures Near Term." Dun & Bradstreet July 1998. May 2001 <http://www.google.com/search?q=cache:wA2Vg-G47CI:www.dnb.com/newsview/0798news1.htm+the+use+of+outside+people+or+companies+to+perform+activities+which+traditionally&hl=en>.
[v] Ibid.
[vi] Antonucci, Y. L., & Tucker III, J. J. (1998). IT outsourcing: Current trends, benefits, and risks. Information Strategy: The Executive's Journal, 14(2), 16-26.
[vii] http://www.cpvp.com/investments/vsp_overview.html
[viii] http://www.xspsite.net/other/index.htm
[ix] www.idc.com/Services/press/PR/GSV061101pr.stm
[x] http://www.oracle.com/oramag/oracle/00-nov/o60bol.html
[xi] DeBellis, Matthew A. "ASP: anyone still playing?" www.redherring.com
[xii] http://www.itworl.com/Career/1826/ITW0220bobweinstein/
[xiii] www.xspsite.com
[xiv] Ibid.
[xv] Ibid.
[xvi] www.mspassociation.com
[xvii] http://www.networkcomputing.com/ 1211/1211f132.html
[xviii] J. P. Morgan H & Q. "Industry Analysis. Navigating the xSP Landscape." April 26, 2001.
[xix] www.mspassociation.com
[xx] www.networkcomputing.com/1211/1211f13.html
[xxi] http://www.zdnet.com/intweek/stories/news/0,4164,2697711,00.html
[xxii] "Hail to the Hybrid." www.aspnews.com
[xxiii] http://www.webopedia.com
[xxiv] Posey & Munroe. "U.S. Web Hosting Services: Market Forecast and Analysis, 1999-2004." IDC. 2000.
[xxv] http://www.zdnet.com/intweek/stories/news/0,4164,2697711,00.html
[xxvi] http://seattle.bcentral.com/seattle/stories/2000/10/09/focus5.html
[xxvii] Ibid.
[xxviii] http://biz.yahoo.com/prnews/010416/nym080_2.html
[xxix] J.P. Morgan H & Q. "Industry Analysis. Navigating the xSP Landscape." April 26, 2001.
[xxx] http://www.cpvp.com/investmetns/vsp_overview.html
[xxxi] "Outsourcing Index 2000: Strategic Insights into U.S. Outsourcing." The Outsourcing Institute and Dun & Bradstreet 7 May 2001 <http://www.outsourcing.com/OI_Agreements/OI_Index.pdf>.
[xxxii] "Dun & Bradstreet Survey Forecasts 27 Percent Growth in Global Outsourcing Expenditures Near Term." Dun & Bradstreet July 1998. May 2001 <http://www.google.com/search?q=cache:wA2Vg-G47CI:www.dnb.com/newsview/0798news1.htm+the+use+of+outside+people+or+companies+to+perform+activities+which+traditionally&hl=en>.
[xxxiii] http://www.itworld.com/Sec/2052/NWW010507feat2/
[xxxiv] Ibid.
[xxxv] Antonucci, Y. L., & Tucker III, J. J. (1998). IT outsourcing: Current trends, benefits, and risks. Information Strategy: The Executive's Journal, 14(2), 16-26.
[xxxvi] Ibid. Executive Journal
[xxxvii] Ibid.
[xxxviii] Nagle, Jim. "Worldwide Outsourcing Spending is Increasing, Contract Deals Are Bigger Than Ever." IDC. May 24, 2001
[xxxix] Meyer, Lisa. "Big Outsourcers Want Even More of the IT Pie." Red Herring 27 February 2001. May 2001 http://www.redherring.com/index.asp?layout=story&channel=20000002&doc_id=290018029.
[xl] http://www.itworld.com/Career/1875/CWD010416STO59661/
[xli] http://www.itworld.com/Career/1875/ITW0228outsourcing/

[xlii] Neil, D. "CIO Update: Network Outsourcing Functions Every Small and Midsize Business Must Consider." Gartner Group, Inc. Jan. 26, 2001

[xliii] http://www.redherring.com/story_redirect.asp?layout=story_generic&doc_id=RH550013655&channel=70000007

[xliv] Ibid Executive Journal

[xlv] Ibid. Executive Journal

[xlvi] Ibid.

[xlvii] http://iwsun4.infoworld.com/articles/op/xml/99/11/01/991101opbiggs.xml

[xlviii] http://www.packerthomas.com/Mfg/S2000/Outsourcing.htm

[xlix] http://www.acs-inc.com/

[l] http://www.ibm.com

[li] http://www.csc.com

[lii] http://profiles.wisi.com/profiles/scripts/corpinfo.asp?CUSIP=285661104

[liii] http://www.wetfeet.com/asp/companyprofiles_mini.asp?company_pk=1731

[liv] http://www.saic.com/outsourcing/it.html

[lv] http://www.input.com/buyers_guide/sof9u/sof9u_main.cfm?research_id=407

[lvi] Ibid. Executive Journal

[lvii] http://www.itworld.com/Man/2679/IWD010430tcintersla/

[lviii] Nagel, Trevor. "Outsourcing Global Telecommunications and E-Commerce Networks." Sourcing Interests Group. 2001

[lix] Nagle, Jim. "IDC: The Computing Utility Services Model Gives Birth to a new Type of Provider." IDC. Jan. 29, 2001.www.idc.com:8080/Services/press/PR/SV012901pr.stm

[lx] Nagle, Jim. "Service Suppliers: IDC Sees Strong Movement Toward a Computing Utility." Aug. 21, 2000. www.idc.com:8080/Services/press/PR/SV082100PR.stm

[lxi] Ibid Outsourcing index 2000

lxii Mastek, The New Value Proposition of Offshore Outsourcing, "The New Value Proposition of Offshore Outsourcing." Mastek 9 March 2001 http://www.mastek.com/content/WhitePapers/detail.asp?item=WhitePapers_92.xml

[lxiii] Ibid. Special report

[lxiv] "xSP Revenues will Exceed $460 Billion in 2005" www.idc.com/Services/press/Pr/GSV061101pr.stm

[lxv] http://www.xspsite.net/other/index.htm

[lxvi] IDC xSP revenues

[lxvii] Ibid.

[lxviii] http://www.sxpcc.com

[lxix] http://www.oracle.com/oramag/oracle/00-nov/o60bol.html

[lxx] http://www.cio.com/archive/050100_monster.html

[lxxi] Ibid. Oracle

[lxxii] http://www.aspstreet.com/archive/d.taf/what,show/id,178

[lxxiii] www.aspnews.com/valuechain.

[lxxiv] Ibid. www.cio.com

[lxxv] http://www.oracle.com/oramag/oracle/00-nov/index.html?o60cov.html

[lxxvi] Shutovich, Christina A., "ASP model can reduce short- and long-term costs." Aftermarket Business March 2001, Vol. 111 Issue 3 p14, 1/2p, 1c

[lxxvii] Borck, James R., "Selecting a good ASP is daunting, but if you find the right factors, the benefits are great" InfoWorld 19 March 2001, Vol. 23 Issue 12, p62, 1/2p

[lxxviii] Ibid. http://www.oracle.com/oramag/oracle/00-nov/index.html?o60cov.html

[lxxix] Ibid. http://www.oracle.com/oramag/oracle/00-nov/index.html?o60cov.html

[lxxx] Giarraputo, Joseph, "ASPs Adapt to a Changing Model" Global Finance April 2001, Vol. 15 Issue 4, p73 5p, 8c

[lxxxi] Ibid. www.cio.com

[lxxxii] Ibid. www.cio.com

[lxxxiii] http://www.doitright.com.au/page20.html

[lxxxiv] http://www.outsourcing-asp.com/

[lxxxv] http://www.outsourcing-asp.com/html/adds.html
[lxxxvi] Ibid. http://www.aspnews.com/analysis/analyst_cols/article/0,2350,4431_771031,00.html
[lxxxvii] Debellis, Matthew A., "ASP: anyone still paying?" Red Herring 20 November 2000 http://www.redherring.com/index.asp?layout=story&channel=40000004&doc_id=1380014538.
[lxxxviii] Torode, Christina, "Rising Above The ASP Shakeout" Computer Reseller News 26 March 2001. 17 May 2001
[lxxxix] http://www.cpvp.com/investments/vsp_overview.html
[xc] http://www.aspnews.com/analysis/analyst_cols/article/0,2350,4431_771031,00.html
[xci] Ibid. http://www.aspnews.com/analysis/analyst_cols/article/0,2350,4431_770741,00.html
[xcii] http://www.aspnews.com/analysis/analyst_cols/article/0,2350,4431_770741,00.html
[xciii] Ibid. http://www.aspnews.com/analysis/analyst_cols/article/0,2350,4431_771031,00.html
[xciv] Ibid. http://www.aspnews.com/analysis/analyst_cols/article/0,2350,4431_770741,00.html
[xcv] Ibid. http://www.aspnews.com/analysis/analyst_cols/article/0,2350,4431_770741,00.html
[xcvi] Ibid.
[xcvii] Raisinghani, Mahesh; Kwiatkowski, Mike, "The Future of Application Service Providers" Information Strategy: The Executive's Journal Summer 2001 p16.
[xcviii] Ibid. http://www.cio.com/archive/050100_monster.html
[xcix] Bendor-Samuel, Peter, Goolsby, Kathleen, "(Evaluating Excellence: A Report on Emerging Standards of Quality for ASPs)" Copyright 2001 OutsourcingCenter
[c] Ibid. Bendor-Samuel, Peter, Goolsby, Kathleen, "(Evaluating Excellence: A Report on Emerging Standards of Quality for ASPs)" Copyright 2001 OutsourcingCenter
[ci] Adler, Jane, "ASPs take advantage of tech wreck; Firms see growth in specialization, message systems." Crain's Chicago Business, April 30, 2001 v24 pSR6 Copyright 2001 Crain Communications, Inc.
[cii] http://www.itworld.com/Career/1826/ITW0220bobwinstein/
[ciii] Desmond, Michael, "When Your ASP Goes Under." PC World May 2001, Vol. 19 Issue 5,p158, 1p, 1c
[civ] http://www.aspnews.com/top20/article/1,2350,10341_753371,00.html
[cv] http://www.idc.com/Press/WN/wn04201pr2.stm
[cvi] Personal Interview, Jessica Gobert, June 8, 2001
[cvii] Ibid.
[cviii] http://www.aspnews.com/strategies/companies/article/0,2350,10576_771281,00.html
[cix] Ibid. http://www.aspnews.com/strategies/companies/article/0,2350,10576_771281,00.html
[cx] Ibid. http://www.aspnews.com/strategies/companies/article/0,2350,10576_771281,00.html
[cxi] http://www.idc.com:8080/Hardware/press/PR/DMT/DMT072500PR.stm
[cxii] http://www.nwfusion.com/news/2001/0213aspbig.html
[cxiii] Ibid. http://www.cio.com/archive/050100_monster.html
[cxiv] Ibid. Giarraputo, Joseph, "ASPs Adapt to a Changing Model" Global Finance April 2001, Vol. 15 Issue 4, p73 5p, 8c

[cxv] Ibid. http://www.nwfusion.com/news/2001/0213aspbig.html
[cxvi] Ibid. http://www.cio.com/archive/050100_monster.html
[cxvii] Personal Interview with Amy Mizoras June 12, 2001
[cxviii] Ibid. Debellis, Matthew A., "ASP: anyone still paying?" Red Herring 20 November 2000
[cxix] Ibid. Debellis, Matthew A., "ASP: anyone still paying?" Red Herring 20 November 2000
[cxx] Ibid. Debellis, Matthew A., "ASP: anyone still paying?" Red Herring 20 November 2000
[cxxi] Ibid. http://www.cpvp.com/investments/vsp_overview.html
[cxxii] Personal Interview Michael Corbett, World Outsourcing Summitt June 5, 2001.
[cxxiii] Ibid.
[cxxiv] http://www.channelweb.com/sections/Resources?Exclusive/Article.asp?ArticleID=26700
[cxxv] Ibid. http://www.channelweb.com/sections/Resources?Exclusive/Article.asp?ArticleID=26700
[cxxvi] http://www-1.ibm.com/netgeneration/programs/aspprime/index.jsp
[cxxvii] http://www2.software.ibm.com/casestudies "IBM ASP Prime Program is One-Stop Shopping for QAD"
[cxxviii] Ibid.
[cxxix] Ibid.
[cxxx] Ibid.
[cxxxi] Ibid.

[cxxxii] Ibid.
[cxxxiii] Ferengul, Corey. May, 28 2001. "MSPs at IT's Services" www.networkcomputing.com/1211/1211f132.html
[cxxxiv] Salomon Smith Barney. "Internet – Infrastructure and Service Providers." Industry Note. July 28, 2000.
[cxxxv] "Opportunities Abound in Network and Desktop Outsourcing Services." Sep. 20, 1999. www.idc.com:8080/Services/press/PR/sv092099PR.stm
[cxxxvi] Ibid.
[cxxxvii] Ibid.
[cxxxviii] http://www.networkcomputing.com/1211/1211f13.html
[cxxxix] http://www.networkcomputing.com/1211/1211f132.html
[cxl] Ibid.
[cxli] http://www.hardwarecentral.com/hardwarecentral/tutorials/158/1/
[cxlii] Wray, Nick. "Key Issues in Network Outsourcing." Compass Pulishing. 2000. http://www.comp assmc.com/international/pubs/nwouts.html
[cxliii] Ibid. Neil, D. "CIO Update: Selective Network Outsourcing is the Right Direction." Gartner Group. October 25, 2000
[cxliv] Ibid. Neil, D. "CIO Update: Selective Network Outsourcing is the Right Direction." Gartner Group. Oct. 25, 2000
[cxlv] http://www.outsourceprc.com/outsrc/helpdesk.html
[cxlvi] http://www.outsourceprc.com/outsrc/desktop4.html
[cxlvii] Ibid.
[cxlviii] Nagel, Trevor. "Outsourcing Global Telecommunications and E-Commerce Networks." Sourcing Interests Group. 2001.
[cxlix] Wray, Nick. "Key Issues in Network Outsourcing." Compass Publishing. 2000. http://www.compassmc.com/international/pubs/nwouts.html
[cl] http://www.bcr.com/bcrmag/2000/07/p56.asp
[cli] www.mspassociation.com
[clii] Ibid.
[cliii] Ibid.
[cliv] Ibid.
[clv] Hurwitz Group, Inc. "Trends in e-Business Outsourcing and the Rise of the Managed Hosting Model." Exodus Communications Inc. January 2001.
[clvi] http://www.webopedia.com
[clvii] Posey & Munroe. "U.S. Web Hosting Services: Market Forecast and Analysis, 1999-2004." IDC. 2000.
[clviii] Ibid. Posey & Munroe. "U.S. Web Hosting Services: Market Forecast and Analysis, 1999-2004." IDC. 2000.
[clix] ING Barings. "Exodus Communications, Inc. Global Research." May 17, 2000.
[clx] Ibid. Posey & Munroe. "U.S. Web Hosting Services: Market Forecast and Analysis, 1999-2004." IDC. 2000.
[clxi] http://www.zdnet.com/intweek/stories/news/0,4164,2697711,00.html
[clxii] Ibid. Posey & Munroe. "U.S. Web Hosting Services: Market Forecast and Analysis, 1999-2004." IDC. 2000.
[clxiii] http://www.ibm.com/services/webhosting/web_hosting_options.html
[clxiv] Ibid. Posey & Munroe. "U.S. Web Hosting Services: Market Forecast and Analysis, 1999-2004." IDC. 2000.
[clxv] http://www.exodus.com/cgi-bin/formhandler/generic_insert.pl
[clxvi] Ibid. http://www.ibm.com/services/webhosting/web_hosting_options.html
[clxvii] Source:www.zdnet.com/intweek/stories/news/0,4164,2697711,00.html
[clxviii] IDC. "Achieving Rapid Return on Investment in Outsourced Web Hosting." http://www.exodus.com/cgi-bin/formhandler/generic_insert.pl
[clxix] ING Barings. "Exodus Communications, Inc. Global Research." May 17, 2000. p.13.
[clxx] http://www.zdnet.com/intweek/stories/news/0,4164,2697711,00.html
[clxxi] http://www.x-changemag.com/articles/082feat1.html
[clxxii] Ibid.
[clxxiii] Salomon SmithBarney. "Internet – Infrastructure and Service Providers." Industry Note. July 28, 2000.
[clxxiv] Ibid. Posey & Munroe. "U.S. Web Hosting Services: Market Forecast and Analysis, 1999-2004." IDC. 2000.
[clxxv] http://seattle.bcentral.com/seattle/stories/2000/10/09/focus5.html
[clxxvi] Ibid. http://www.x-changemag.com/articles/082feat1.html
[clxxvii] Ibid.
[clxxviii] "Energy crisis pinches hosting vendors." InfoWorld January,

8,2001,www,utwirkd,cin/Net/3483/IW010108hnpower/>
[clxxix] Nielsen, Kim, etal, Personal Interview, Bill T. Carrigan 7 June 2001
[clxxx] Nielsen, Kim, etal, Personal Interview, Bill T. Carrigan 7 June 2001
[clxxxi] Ibid.
[clxxxii] Ibid.
[clxxxiii] http://iwsun4.infoworld.com/articles/hn/xml/00/03/27/000327hnelect.xml
[clxxxiv] http://www.itworld.com/Net/3483/IW010108hnpower/
[clxxxv] http://www.xspsite.net/nsp/
[clxxxvi] http://www.exodus.net/press_room/information/network/index.html
[clxxxvii] Pressler, Chris, etal, Personal Interview, Phil Windley 11 June 2001
[clxxxviii] http://www.exodus.net/press_room/information/network/index.html
[clxxxix] http://www.terremark.com/Content.cfm?PID=30&Sub=75
[cxc] www.mae.net or http://208.234.102.97/MAE/
[cxci] http://biz.yahoo.com/prnews/010416/nym080_2.html
[cxcii] Ibid. Computerworld, 1/1/2001, Julekha Dash
[cxciii] http://www.computerworld.com/cwi/story/0,1199,NAV47-74-212-466_STO55557,00.html.
[cxciv] "Gartner Dataquest Says Internet Industry is Creating Great Opportunities for Business Process Outsourcing Companies" Business Wire 1 March 2001. 22 May 2001 <http://biz.yahoo.com/bw/010301/0068.html>.
[cxcv] Vales, Joseph. "Business Process Outsourcing: Global Top Decision-Makers Study." www.sourcinginterests.org May 2001
[cxcvi] "IDC Observes C-Level Executives Having a Growing Influence in HR Outsourcing." PR Newswire 23 April 2001. 1 June 2001 <http://biz.yahoo.com/prnews/010423/nem021.html>.
[cxcvii] "CE Unterberg, Towbin Issues Investment Opinion on ACS and Publishes in-depth Report on Business Process Outsourcing Industry." PR Newswire 16 April 2001. 3 May 2001 Accessed through Lexis-Nexus
[cxcviii] http://www.adp.com/
[cxcix] Ibid. Joseph Vales
[cc] Ibid. Joseph Vales
[cci] Schwartz, Susana. October 1998 "BPO: A Prolonged Courtship." May 15, 2001 Accessed through Lexis-Nexus
[ccii] "The AAC Group Expects Human Resources Outsourcing Market to Reach $20 Billion in 2003 'Cosourcing' to Play a Major Role in HR Outsourcing Boom" PR Newswire 23 May 2000. 17 May 2001 Accessed through Lexis-Nexus
[cciii] http://www.idc.com:8080/Services/press/PR/sv020100PR.stm
[cciv] "E-commerce Advancing the Logistics Market to a $114 billion Industry by 2003." Business Wire 25 April 2000. 17 May 2001 Accessed through Lexis-Nexus
[ccv] http://www.pwcglobal.com/bpo Interview with John Barnsley, PricewaterhouseCooper's Global Leader of Business Process Outsourcing – 1 June 2001
[ccvi] http://www.fortune.com May 2001 Fortune 500
[ccvii] Ibid. www.fortune.com
[ccviii] http://www.adp.com/corporate/about.html#employer
[ccix] http://www.wetfeet.com/asp/companyprofiles.asp?companypk=1688
[ccx] Ibid. www.fortune.com
[ccxi] http://www.administaff.com/COMPANY_INFORMATION/welcome.htm
[ccxii] http://www.wetfeet.com/asp/companyprofiles.asp?companypk=837
[ccxiii] Ibid. www.fortune.com
[ccxiv] http://www.staff-leasing.com/about_facts.asp?tab=5&subtab=1
[ccxv] http://www.wetfeet.com/asp/companyprofiles.asp?companypk=1459
[ccxvi] Ibid. www.fortune.com
[ccxvii] http://www.paychex.com/paychex/paychex.html
[ccxviii] http://www.ceridian.com/who.asp
[ccxix] Pressler, Chris. Personal interview. 9 May 2001
[ccxx] Bingham, Craig. Personal interview. 11 May 2001
[ccxxi] Nielsen, Kim, Bingham, Craig. Personal interview. 4 May 2001.
[ccxxii] Richards, Jennifer, etal. Personal interview. 8 May 2001.
[ccxxiii] Pressler, Chris. Personal interview. 11 May 2001.
[ccxxiv] J.P. Morgan H & Q. "Industry Analysis. Navigating the xSP Landscape." April 26, 2001.

[ccxxv] http://www.cpvp.com/investmetns/vsp_overview.html
[ccxxvi] http://www.redherring.com/story_redirect.asp?layout=story_generic&doc_id=RH760019076&channel=20000002
[ccxxvii] Ibid.
[ccxxviii] www.qcs-us.com
[ccxxix] www.peoplesoft.com/aboutus/
[ccxxx] www.netledger.com
[ccxxxi] www.agilera.com
[ccxxxii] www.finance.yahoo.com/trizetto/
[ccxxxiii] www.finance.yahoo.com/mcafee/
[ccxxxiv] www.vericenter.com
[ccxxxv] www.portera.com
[ccxxxvi] "Outsourcing Internet Infrastructure:Primary Benefits and Real-World Returns." Intermediagroup, www.loudcloud.com/presk

[ccxxxviii] Source: JPMorgan H&Q. "Industry Analysis. Navigating the xSP Landscape." April 26, 2000.
[ccxxxix] Application Service Providers Glossary, PC Magazine, April 3, 2001. Compiled by Cassandra Gero